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Work Project

Business Plan for Global Sales of High-Value-Added Leafy Vegetables

Delivery Service of High-Value-Added Frozen Smoothies for Office Workers in Silicon Valley

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Business Plan for Global Sales of High-Value-Added Leafy Vegetables - Executive Summary

The objective of this report is to propose a business plan for Kowa's leafy vegetable business outside of Japan. The final recommendation is for Kowa to enter Silicon Valley, California, with six frozen smoothies (where two can be made into "smoops" or soups) with hydroponically-grown leafy vegetables as ingredients. These smoothies and "smoops" are primarily targeting the notoriously hard-working and affluent office workers of Silicon Valley, who have a need for nutritious, vegetarian and quick meals, as was identified through market research. Finally, financial projections show net profits in the second year of operations and break-even within 4-5years. In the second half of the report a literature review of Green Marketing will be given, explaining the definition and history of research of this topic as well, as selected research results

Keywords:
High Value-Added Leafy Vegetables; Hydroponics; Vertical Farming; Green Marketing

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1 Brief Context

1.1 Client

Kowa Group is a complex corporate entity that consists of many associated companies centred on Kowa Company, Ltd., and engages in diversified business activities. It began operations in 1894 as a cotton fabric wholesaler, but has since ventured successfully into manufacturing and trading of a wider range of products.

Its key activities at present revolve around six sectors, namely:

1. Health and Medical – Prescription drugs, medical equipment, OTC drugs, personal hygiene products and dietary supplements
2. Environment and Energy Conservation Technology (Environment/Energy Conservation) – LED lighting and renewable energy generation systems
3. Service Business – Remote control, surveillance system, dispatch of specialist, service
4. Community Development – Maintenance and upgrading of residential environment
5. Lifestyle Business – Fashion, apparel, textile, miscellaneous daily products
6. General Trading – Eco-friendly materials and products, infrastructure development

(Kowa Group 2016)

Kowa has widened its Environmental and Energy Conservation sector by entering the agricultural industry with indoor farming. The indoor farming business needs amongst other things light-emitting diodes (LEDs), water sanitations systems, soluble nutrients and a closed sanitary environment. This fits well with Kowa's capabilities and vision to create sustainable businesses given that the company has a wide range of relevant expertise; being a LED manufacturer, pharmaceutical distributor and overall an environmental friendly corporation.

1.2 Market Overview

Indoor agriculture has been gaining momentum on a global scale, promising to support and complement existing food chain systems by creating a diverse, resilient and distributed eco-system to supply the world with farming products, despite environmental shocks, an ageing population etc. Indoor farming will also help the world to meet the increasing demands for food fuelled by a growing population and the increasing consumption for especially vegetables.

> *THE WORLDWIDE MARKET VALUE OF HYDROPONICALLY PRODUCED FOOD WILL SHOW SUSTAINED STRENGTH WITH A 6.5% COMPOUND ANNUAL GROWTH RATE (CAGR) OVER THE FIVE-YEAR FORECAST PERIOD 2013-2018* (Figure 1), *BEATING THE IMF ESTIMATED GROWTH FORECAST OF 3.6% FOR 2014. PRODUCER VALUE WILL INCREASE*

> *FROM $17.7 BILLION TO $24.3 BILLION, WHILE THE WORLDWIDE MARKET VALUE OF HYDROPONICS AND AQUAPONICS PRODUCED FOOD WILL GROW AT 7.0% COMPOUNDED ANNUAL GROWTH RATE (CAGR) OVER THE EIGHT-YEAR FORECAST PERIOD, FROM 2015 to 2023(* Figure 2*) PRODUCER VALUE WILL INCREASE FROM $21.4 BILLION TO $36.9 BILLION US DOLLARS* (Simpkins, Jungers and Stimmel 2015).

Plant factories with artificial (electric) lighting (PFAL) also known as indoor plant production systems, are expected to play a critical role in urban development, urban farming and vertical farming in the coming decades.

The advantages of using hydroponics technology are summarised as follows (Kozai, Genhua and Michiko 2015):

- Water-saving technology with a recycling rate of 95%, as the water with soluble nutrients circulates within the rack system, something that is not possible to do in conventional farming
- No usage of pesticides
- Higher nutritional content than conventional agricultural produce, as the nutrients are directly absorbed into the roots without hindrance from any soil
- Minimal wastage of produce due to ideally controlled environment

Since the nature of indoor farming is capital intensive, such farming business is still tied in a long term high volume and low margin competitive market with many different aspects of business risk. Barriers of entry are consistently present despite the fact that technology, expertise and capital constraints exits, it is also widely available in many countries. Selling vegetables straight in the market means the sales price is constrained by market forces. As of today, economic sustainability in this business is difficult to achieve by conventional strategies of produce and selling vegetables alone.

> *ACCORDING TO A SURVEY IN FEBRUARY 2014 BY THE MINISTRY OF AGRICULTURE, FOREST, AND FISHERY OF JAPAN, AMONG 165 PFALS, ONLY 25% MADE A PROFIT, 50% BROKE EVEN, AND 25% LOST MONEY. IN ORDER TO MAKE A PROFIT, OVER 90% OF PFAL-GROWN VEGETABLES NEED TO SELL AT A REASONABLE PRICE.* (Kozai, Genhua and Michiko 2015, 26)

1.3 Current Client Situation

Kowa has been heavily researching into Indoor Hydroponics farming since 2014, and has implemented its plan to build an indoor farming facility in one of its factories in 2015 located at Komaki City, Nagoya, Japan. At the moment space which set aside amounts to approximately 1000m^2. Kowa is able to successfully produce leafy vegetables, such as lettuce on a mass scale and has been packaging the product and servicing the local market. The

lettuces are marketed in packets of 80g each with daily production rate at about 650 packages. Kowa uses a hydroponic system for nutrient circulation and pH control. Environmental variables such as temperature are controlled with thermostat based temperature control, while sunlight hours are managed using its in-house manufactured LEDs. Thanks to the nature of its production process in a closed controlled environment, its lettuce are bacteria free and have higher nutrient content per biomass compared to conventionally farmed lettuce. Current production cost per package of lettuce according to discussions with Kowa estimated in Table 1: Production Margin of Basic Product.

Utilization rate however is approximately at 60% of biomass produced because of the nature of unstable production risk. Leaves have to be trimmed manually for quality control before being packaged and sealed. For a summary SWOT Analysis of the company refer to Table 2.

1.4 The Business Project Challenge

The business project aims to analyse new markets for Kowa to expand into as well as derive a business plan for Kowa to market its leafy vegetables. The issues that Kowa faces are country selection, cost minimization, product shelf life, utilization, value (nutrients, taste and differentiation) of final product, consumer perception of hydroponically grown product, marketing as well as and product portfolio mix. One of the limitations given was for the suggested business plan to be profitable by year 2 and to break even by year 5.

2 Reflections on the Work Done

2.1 Problem Definition

Hydroponics is an expensive technology, due to the requirements to cleanness and the electricity consumption for the lighting and environment control. Therefore, the derivative products are much more expensive than leafy vegetables of conventional farming origin. This results in a low profitability and worse competitive stance of the produce. Moreover, leafy vegetables have a short shelf-life of on average two weeks resulting in a very perishable product. As it is a food product quality demands are higher, as otherwise the consumer is endangered. The suggested business model has to address all these issues and propose a sustainable and profitable business model while keeping the risks minimal.

2.2 Hypothesis

In the course of the project no specific hypotheses were developed as recommendations were a derivative of market research and market trends, however there were numerous implicit hypotheses that presented themselves after understanding the challenge ahead and studying several case studies on vertical farming which were partly provided by Kowa and partly self-researched.

H1: As the technology is very new and sophisticated it will need a developed market and a customer with high adoption rates of new technology to understand it.

H2: As this technology is very expensive the target region should have a large consumer base with high purchasing power.

H3: The target consumer values the added benefit of hydroponic farming versus conventional or organic farming.

H4: The aforementioned conditions are more likely to be present in a developed country with problems with arable land and a positive attitude towards sustainability.

2.3 Methodology

The project was carried out under strict supervision by the company with weekly presentations on the progress of the project from the side of the team. As such initially the next steps were defined by the company. However, after the first few meetings it became clear that the structure suggested by the company was not beneficial to the flow of the project and therefore in the following meetings the team took the initiatives to decide on the next steps needed. As such the first sessions were spent on researching case studies and developing over two dozen business models to present to the company. While it was beneficial to study the case studies in order to gain insight on existing business models and develop the aforementioned implicit hypotheses, the second part of deriving business models in the first week of the project resulted in a very superficial work due to lack of knowledge on the market and the company and due to time restraints. However, after the team restructured the work it followed a more classical project management approach: First understanding the market and industry, then selecting a target location, understanding the clients' needs and designing a product to fit both needs and market reality. Therefore, the methodology of the project can be divided in two halves – country selection and business model development. Of

particular importance to Kowa in the second part was to develop a definition of "Highly Value-added Leafy Vegetables" for the purpose of which we conducted in depth interview with the target consumer.

2.4 Analysis

2.4.1 Target Location Selection

After having understood how the industry is structured we had to define the most favourable geographic market to enter. To that end the PESTEL framework was employed (Political, Economic, Social, Technological, Environmental, Legal) in order to keep in mind all relevant factors. The Analysis was carried out in several iterations (see Figure 3). In the first phase almost 200 countries were ranked in a balanced scorecard based on their performance on the dimensions of the PESTEL. Our criteria, mentioned above, can be summarized as looking for a country with high income per capita, positive attitude towards sustainability, problems with arable land, high import of vegetables, good infrastructure, legal stability. For this indicators were selected for each dimension and assigned a weight. On top of this each dimension of the PESTEL was also assigned a weight, for instance we perceived the Economic and Environmental Dimensions to be of much more importance in this industry that the political dimension. This analysis was a more quantitative one, using indicators from sources such as the World Bank, Yale University, Euronomitor to shortlist the top attractive countries for hydroponics around the world. After the first round a correlation analysis was run and several factors were excluded from the analysis to make the results as reliable as possible. The individual weights per dimension and per indicator of the final analysis can be seen in Figure 4 and

Table 3.

In the second part of our analysis, we looked at the regional attractiveness of the seven regions (see Table 4) which is important in the long term when entering a certain market. This was done in a quantitative and qualitative manner. The quantitative manner involved averaging the score for the region. The qualitative part involved in depth research of one representative country of each of the regions in order to determine more clearly the market attractiveness of each.

The outcome of that analysis was that the USA is the most attractive market for hydroponics:

1. Revitalized economy characterised by higher spending and disposable income
2. Government support in the form of many funds, and grants for agriculture and innovation in agriculture
3. Consumer trends towards vegetables, sustainable food production, and a healthy lifestyle overall
4. Highly developed infrastructure and internet penetration
5. Relatively low level of regulations on food compared to e.g. the EU

In the third and last phase of our market selection, we looked at the characteristics of the different states within the USA. We researched the economic conditions, purchasing power, demographics, weather characteristics, food trends, and agriculture of each state. This lead us to consider California to be the most attractive market place:

- Top five food trends: locally sourced meats & seafood, locally grown produce, environmental sustainability, healthy kid meals, minimally processed food (Euromonitor International 2015)
- Expenditure per household increased by 5% from 2009-2014 in real terms (Euromonitor International 2015)
- Relatively strong logistics and infrastructure (The World Bank 2016)
- No legal regulation on GMOs, USA accounts for 40% of global GMO market (Congress 2015)

Although it is one of the states with best access to healthy food retailers California alone accounts for 36% of US organic sales (Bailey and Davis 2011) and highest farmers market density (Philpott 2011) cost and availability of groundwater is a great concern. This makes producers reduce total acreage, driving up prices in the long term. Droughts in CA have the potential to drive up prices for fruits and vegetables further, as climate change makes droughts more prevalent. A microanalysis of the state shows that its median intake of vegetables is the second highest in the US (1.9 times a day) (Moore and Thompson 2015).

2.4.2 Business Model Development

Having decided on the West Coast of the United states it was important to define the target customer, design the product and understand the competition to draw up a sustainable business model.

2.4.2.1 Consumer Insights

Among the trends we identified for consumption patterns in the US and particularly the west coast we found strong indicators pointing towards the need for nutritious, vegetarian and quick meals. Especially in the light of stressful work environments and the resulting bad dietary habits: According to the Environmental Working Group, the US suffers from many nutrient deficiencies (Table 5), the most prevalent ones being vitamin E and D (Bruzelius, Nils. 2016). While vitamin D is not present in vegetables, kale and spinach for example have high contents of vitamin E.

Therefore, at this point another implicit hypothesis was added, that within California. Silicon Valley would be the best target location. To test the hypothesis, we did another round of analysing consumer trends, this time on a smaller scale focusing only on the Bay Area and Silicon Valley.

Median household incomes are exceptionally high in the Silicon Valley making the area very attractive for the entry of premium products as well (Figure 6 & Figure 7). From a lifestyle perspective, the Silicon Valley offers great opportunities for Kowa mainly as nutrition is becoming increasingly important to employers in Silicon Valley, to a point where it is used as a recruitment tactic and CSR activities (O'Brien 2015). Stress levels are overall high in the US and has in recent years increased even more, 83% of Americans feel stressed (Swartz 2013). Because of the pressure and limited time many employees resort to skipping meals, in fact 50% of respondents of the 2000 Integra Survey responded that they frequently skip lunch (Stress n.d.). Others resort to consuming unhealthy fast food and stay at their desks all day long (O'Brien 2015). Logically exercise and healthy eating are compromised for meeting deadlines.

At this point we started to loosely develop product concepts, seeing that food intake especially at the work place was very bad, while at the same time there was a need and demand for healthy nutrition. Therefore, office deliveries of healthy vegetable meals or

snacks seemed feasible. To confirm this theory and to understand the meaning of high value added leafy vegetables to the consumer we conducted several interviews, as secondary research at this point was exhausted.

2.4.2.2 Defining "High-Value-Added"

25 respondents of balanced gender representation, situated in the selected country were asked a list of questions in an interview format. The interviews were carried out either face-to-face, via telephone or through online chatting. The goal of the interviews was to understand opinion of what consumers think of as "high-value-adding vegetables" as well as their perception of hydroponics and Japan as a country of origin.

For the most parts the interviews confirmed the trends identified in the PESTEL analysis. Consumers were seeking for fresh vegetables, mostly buying them from farmer's markets. Vegetables sold in supermarkets were perceived as unhealthy, because of the huge amounts of pesticides used on them, calling them "plastic to the touch and feel" (Merah 2016).

High value added was mainly associated with high nutritious content, as well as with kale and spinach. At the same time, consumers were positive towards Japanese vegetables, seeing them as being healthier. Finally, most consumers were not aware of hydroponics but were very interested in the technology after it was explained to them, especially water saving and no use of pesticides were perceived as most valuable attributes. Consumers raised the question whether hydroponics was a more expensive technology, stating that the two most important selection criteria for vegetables for them were price and freshness.

From this we can derive that consumers are generally favorable both towards the country-of-origin and the farming technology and the product will benefit from both. However, due to the price sensitivity and the low margins on the vegetable it will be difficult to compete with farmer's markets and organic manufacturers. When asked about smoothies most consumers stated that they either consume smoothies or know people who do. Often fruit, dairy products or protein is added to the vegetable smoothie to make it more nutritious, tasty and satiating.

In Summary both consumer insights from both secondary and primary research pointed towards a convenient food product to be consumed with ease at the work place – our choice therefore fell on frozen smoothies and smoops. The product will be discussed in more detail further below.

2.4.2.3 Competitive Landscape

In order to understand how to position Kowa in the market place, direct and indirect competitors need to be analysed. For this purpose, the main competitors in the office food delivery market were first rated on four dimensions of what 'high-value-added' means in this business (see Figure 6). The analysis reveals that the strongest competitors are chewse and Farm Hill, which both serve a similar market as the one Kowa is proposed to operate in. The benchmark values for Kowa on the right in Figure 6 indicate that on 'ease of use' and 'delivery', Kowa needs to at least match the best competitors, while on 'healthy nutritional value' and 'customer service' it needs to outperform competitors by making use of the differentiation potential on these two dimensions.

Figure 7 illustrates the positioning of these competitors according to low/high value-added on the x-axis and niche/mass market on the y-axis. Clearly, there are profitable niches and the potential for Kowa is to operate successfully in this market by entering a niche of high-value-added products. The analysis of direct competitors shown in Figure 8 classifies smoothie sellers according to snack/meal replacement on the x-axis and low/high nutritional value on the y-axis. This analysis reveals that by positioning Kowa's product as snacks, the company comes closest to serving the target niche market needs identified above.

Figure 9 illustrates direct and indirect competition according to the four main times of consumption, namely breakfast, lunch, afternoon snack and dinner. The analysis shows that competition for afternoon snacks from other sources is less. In addition, research suggests that 41% of smoothies sold are mainly consumed as afternoon snacks in the United States (see Figure 11). Moreover, 59% of US respondents indicate to consume smoothies as a snack, while 25% drink them as part of a meal (Westra 2015). As a result of this analysis, it is proposed that Kowa offer their smoothies as a snack.

2.5 Recommendations to Kowa

Based on the analysis provided above, we propose Kowa to follow a differentiation focus strategy serving a niche market with a differentiated product.

More specifically, the proposed niche for Kowa to operate in has four dimensions: (1) a geographical niche in that the target market is the Silicon Valley in California; (2) a product niche where frozen smoothies and 'smoops' are sold as snacks; (3) a demographic niche

defined in terms of age and income in; (4) a lifestyle niche - our main target customers.

2.5.1 Entry Product Portfolio

Based on the previous analysis of quantitative and qualitative data both on a large and small scale, Kowa is suggested to enter the market with a product mix of four vegetable and fruit smoothies and two "smoops". The latter being vegetable only smoothies, delivered with a small packet of vegetable stock. They can either be consumed as smoothie or by heating up and adding the stock as a warm soup, depending on the preference of the consumer. Hence the name, which is a combination of the word smoothie and soup. The Smoothies will be combinations of organic vegetables, fruits and dairy products with Kowa produce and the recipes are based on research on currently popular green smoothies in the US. It is important to note that all non-Kowa ingredients will be sourced organically, in order to even further strengthen the healthiness positioning of the product and don't assume a weaker position against organic only competitors. The recipes (Table 6) are based on currently trending combinations and attempt to provide a high content in vitamins and minerals to address nutrient deficiencies, originating from unhealthy eating.

Frozen smoothies have numerous advantages as summarized below:

- Longer shelf life (6 months) reduces risk through sales volatility, at the same time freezing preserves vitamins and nutrients without having to rely on sugar or chemical conservatives like competitor's products. As for freshly prepared smoothies, this product has the advantage of convenience as o preparation, blending and thinking of recipes is needed.
- Smoothies have a higher differentiation and branding potential than raw vegetables, on top of which by capturing more steps in the value chain it is possible to achieve higher (justifiable) margins (see Table 7)
- Packaging can be used as a further source of differentiation, by using high quality plastic cups with good haptic qualities, and ergonomic shape. Moreover, two sizes will be offered to increase convenience for the customer - 240ml and 480ml, 3oz and 6oz respectively
- Conventional farming relies on heavy usage of pesticides, while hydroponics uses none, a factor that consumers value
- Both organic and conventional farming use a lot of water, at the same time about 30% of the produce is deemed unfit for sale and is disposed of (Kozai, Genhua und Michiko 2015) – this leaves room for hydroponics, as water recycling and high predictability reduce both water consumption and wastage to the minimum (Kowa 2016)
- The country of origin effect can be leveraged, as Japan is associated with high quality, technological advancement, longevity and healthy nutrition, especially in the US.

Adding uniquely Japanese herbs and vegetables such as “Komatsuna” to each recipe will emphasize on this

The suggested price for the individual package is $6-$7 ($9-$10) based on the ingredients for the smaller (larger) size, with a 5% discount for the weekly and a 10% discount for the monthly bundle.

2.5.2 Target Customer

Hired sales representatives will target businesses directly will be approached differently, depending on their size. Small businesses (10 to 50 employees) and start-ups will be contacted through the owner while appealing to their responsibility towards employees. Businesses with less than 10 employees will not be actively targeted. Market entry will initiate with small business and especially Japanese companies who are familiar with Kowa. We believe that by targeting these rather small Japanese companies, Kowa will have the biggest success rate in acquiring them due to the recognition of Kowa as a brand among the Japanese. Over the short term future medium sized enterprises (51-500 employees) will be targeted, starting from year two, mainly through HR who can use the healthy snacks as internal CSR activity to boost employee motivation. Finally, large firms (over 500 employees) will be targeted through the canteen management. Companies can either offer the product to their employees for free or have a delivery agreement with Kowa where employees place orders for a week in advance and pay for the product themselves and it is delivered weekly.

In the long run, it is reasonable to expect that Kowa will mostly serve medium sized companies. This is because, in case the business is successful and profitable, many big players will likely fight for the bigger company clients in the Silicon Valley.

The actual final consumer is a highly educated male or female in a very stressful work environment, between 20 and 35 years of age, consciousness about their (bad) dietary habits and with an above average annual income. They will be from the so called DINKY demographic, which means double-income-no-kids-yet, meaning an affluent individual with high disposable income.

2.5.3 Brand Personality & Sales Channels

An effective brand increases its brand equity by having a consistent set of traits that a specific consumer segment enjoys. The brand name <smoop> will be enhanced with the mascot

"Smoopπ" a leafy dog – man's best friend, bringing vitamins, health and happiness and associated with the values vitality, energy and longevity.

The brand will be positioned as an offering of convenience without the sacrifice of taste or nutritional value, which does not compromise on quality, drawing inspiration from customers' needs and wishes. That makes commitment to quality and customer centricity one of the central brand promises. This is in alignment with the corporate values and history of the company, as well as their strong commitment to R&D investment (Kowa 2016).

The sales of smoothies will go via three channels: food trucks, workplace deliveries and the online website. The channel of greatest priority from launch will be the workplace. Each channel can potentially serve three types of consumption – single purchase, delivery & subscription and event catering. Website and workplace is expected to have most revenue from the subscription and delivery business. The food truck however will have in majority single orders and can also be used for event catering. See

Table 8 for a detailed breakdown.

2.5.4 Promotions, CRM & Differentiation

The marketing strategy comprises a combination of both push and pull marketing tools. Push marketing alone is not sufficient to build the brand and brand promise and position the product as a lifestyle offering. Building a high end-consumer demand will make the product more attractive to the companies, as it will guarantee consumption by employees and might serve as a differentiating factor against competitors for internal CSR. Various promotional activities, which are appealing to the final consumer and align with the brand and product are suggested on top of direct sales to companies.

2.5.4.1 Food Truck

Promote product to target consumer on their way to work as a way to gain awareness. Food trucks positioned in front of office buildings and business parks during morning rush hour and lunch time. On weekends and off rush hours the food truck can cater to events or other venues with a lot of pedestrian traffic. **Budget**: $300,000 p.a. **Target**: Office employees **Aim**: Awareness building **Timing**: With Market Entry

2.5.4.2 Experience Vertical Farms

Selected internet celebrities from food and nutrition market will work in a vertical farm for 2-3 days and report the experience to their followers. Their verdict will have a lot of credibility while at the same time being a creative channel to explain both product and industry. **Budget**:

$20,000 p.a. **Target**: Consumer & Press **Aim**: Brand & Product Awareness **Timing**: With product launch

2.5.4.3 "Smoop farm" Mobile - App Game & incorporated Meal Planning Tool

Gamification of the industry and product by allowing users to become a plant factory owner, develop products, find revenue channels and become the best farmer in the city. Advantages of app games include high presence time and high spill over to other social media channels, because of invitation based rewards, thus leveraging the network effect. Additionally, it will give access to the Meal Planning Platform, see Chapter 2.5.4.8 and the possibility to purchase. **Budget**: $60,000 for development, testing and app store fees **Target**: App gamers **Aim**: Awareness and understanding of the product **Timing**: 6 months after market entry

2.5.4.4 Coding Challenge

Kowa sponsored 48h coding challenge for software developers, with $15,000 prize for best team, to code software for environment control in a vertical farm within. This promotion aims at otherwise inaccessible consumers by giving them an opportunity to try the product while doing something they enjoy. High coverage by press and social media will guarantee high reach. Benefits to Kowa include access to software, new ideas and the opportunity to promote product **Budget**: $ 300,000 **Target**: Software engineers in Silicon Valley (1,000 participants) **Aim**: Consumer acquisition, awareness and recognition **Timing**: 1 Year after launch

2.5.4.5 Guess the 'Smoop'

Consumers have to guess correctly which vegetable was used in four new smoothies that will be added about two years after market entry. The winner will receive a $10,000 prize. Competition encourages existing consumers to try out the product, making them more curious about the new taste. Similar campaigns for user driven innovation of products for future line expansions include voting on best recipe. **Budget**: $20,000 **Target**: Existing customers **Aim**: Repeat purchase **Timing**: 2 years after launch or with product expansion

2.5.4.6 Food Truck on the Road

Documented road trip with the Food Truck throughout the US to promote product in other geographic areas. This will help to gather consumer insights from other regions as well as identify potential markets. This promotion has high potential for social media buzz and opportunity to reach out to other geographic regions. **Budget**: $300,000 **Target**: Office

employees, tourists, festival visitors **Aim**: Market expansion and awareness spreading **Timing**: 2 years after launch

2.5.4.7 Social Media Promotions

The aim of using social media promotions seeks to build the user community 'the smoopers'. A multi-channel approach is suggested: The website will be used mainly for informative purposes, sales and access to the meal planning tool which will be explained in Chapter 2.5.4.8. Facebook will be used for fate-to-face interactions with the clients, while twitter and Instagram will mostly serve to support the promotional activities and the food truck. Development budget for the website $40.000; annual management budget $10.000. Management of the social media platforms: $12.000 annually.

2.5.4.8 CRM Programme

To increase consumer loyalty and promote repeat purchase it is advisable to engage in customer relationship management. For this a strategy based on two pillars is suggested – rewarding loyal customers while at the same time increasing their switching costs. The activities are budgeted at $200,000 annually. It is important to monitor the consumption patterns of the customers and determine their preferences as well as identify the most profitable customers, while trying to reduce the number of unprofitable customers.

Loyal customers can be rewarded through special discounts and promotions, such as early access to new product launches and special discounts for A-Tier consumers. Moreover, CRM should be personalised, offering the customer special discounts on birthdays or other holidays. Offering a mass customisation option will give potential new recipes and ideas.

To effectively increase switching costs, it is important to provide a service to the customer which is so beneficial, that they do not mind being locked in to the brand. For this it is advisable to develop a Meal Planning Platform. It will contain consumption history, preferences and nutrition goals in the form of a food diary. Based on the food logged in customers will receive an estimation of missed recommended daily goals of nutrients and a suggestion which Kowa product to use to meet the goal. The service can be made even more usable by synchronising it with the built in IOS pedometer and other activity measurement gadgets. It can also be used to capture consumers from competitors by offering the platform

to all consumers, not just actual buyers. This will be a rich information database for Kowa to plan future products and get into the customer's mind-set.

2.5.5 Supply Chain & Operations

2.5.5.1 Facility Location

The selection of a production facility for Kowa's business has been performed according to the following criteria: water shortage risk, water softness, organic produce suppliers. According to all of these criteria the ideal location for production for Kowa is around Eugene, Oregon (PNAS Org 2012) (see Figure 14 and Figure 15). The strategic disadvantage of distance from the customers will be solved by installing a distribution centre in Modesto, California (due to cheaper property than the Bay Area, and proximity to the target market). This setup ensures production stability and quality, as well as customer proximity.

2.5.5.2 Profitability and Break-Even-Analysis

The profitability of the business assuming 100% capacity was calculated (refer to Appendix Figure 16 and Table 9) and the net profit margins for $5, $6, $7, and $8 as sales prices were analysed:

Given the premium position and unique offering of Kowa's product, a $5 price point would not reflect the product's benefits. However, an $8 price point would potentially limit the volume sold (our competitive analysis revealed only one competitor offering at that price point). Thus a price in the range of $6-7 is recommended, as stated previously.

A BEP analysis suggest that the business can at all be profitable even at less than 100% capacity. Assuming a plant size of 1100m2 in Eugene, Oregon, a 200m2 DC in Modesto, estimated CAPEX is around $9,751,000. The estimated production capacity of the plant is 1,460,000 units annually (assuming one head of kale or lettuce of spinach is used per smoothie, and 4,000 units produced per day). As can be seen in Table 10, in theory this business setup can be profitable and break even within 5 years for all price points. Within our recommended sales price range of $6-7 the company should have no issues with profitability in the long run, and be able to remain profitable even at 40% (29%) capacity utilization in the case of a $6 ($7) price range. Refer to Figure 17 for details.

2.5.5.3 Income & Cash Flow Projections

Given that Kowa has no historical data in the food industry and specifically in the target market and segment, it is unrealistic to claim that Appendix Figure 18 and Figure 19 are financial forecasts, but rather financial targets. If those targets are achieved, the business is expected to be profitable in year 2 (net income of $ 120-630k) with revenue in year 5 of $8.3-9.7m, with a profit of $1.5-2.8m and cash earned over a 5-year period between $10.8-14.6m. Resulting in a cash break even between quarter 4 of year 4 and quarter 2 of year 5. The required units sold per year and capacity utilization can be seen in Appendix 19 and 20.

2.5.6 Long Term Potential for Product Extensions

An incremental expansion of the product portfolio and incorporation of customer feedback will ensure Kowa a competitive position in the market. Subsequent to the launch of the smoothies and smoops Kowa will be able to use customer data and promotional campaigns to add more flavours to the product lines. Eventually Kowa could offer a line of healthy salads within the same brand to both existing and new customers, using customer preferences and data collected combined to fine-tune salad recipes.

In the long term, more types of plants grown such as tomatoes, mushrooms and cucumber will allow wider range of products. Concurrent R&D need to be taken to 'enhanced' vegetables in terms of nutritional value, taste and other characteristics in order to gain even more competitive edge and to complement its pharmaceutical business. In addition to consumption-based products, Kowa is suggested in the long-term to expand into promising adjacent business such as supplements and natural cosmetics.

2.6 Shortcomings and Mitigation

The suggested project has four identifiable shortcomings, three business risks and the risk to fail meeting sales target. The risks and their mitigations are explained in the following part.

2.6.1 Scenario Analysis

As a rough milestone, Kowa should aim to reach at least 50% capacity utilization by the end of year 3. In case this happens, Kowa should expand its sales region to the whole of Bay Area, LA and San Diego. To achieve that it would have to further increase its capacity in Eugene, and also build a distribution centre in San Diego. In case it does not reach its milestone of 50% capacity by the end of year 3, Kowa would have to gather as much

customer feedback as possible via focus groups and interviews, adjust its offering, and solely consider expanding its sales region to the Bay Area. Kowa should only consider expanding its capacity, once the sales momentum restores to what was originally planned. For the rough calculations of both options, refer to Figure 25.

2.6.2 Risk Analysis

2.6.2.1 Legal – Potential Lawsuits from Healthy Image of Products

First of all, Kowa is recommended to refrain from any claims on the health effects of its products. Nevertheless, targeting health-conscious customers and corporations who adopt employee health initiatives involve a certain degree of legal risk.

The most important mitigation plan is to never claim specified health outcomes from the consumption of the products. Other tactics include increased promotion efforts to convey Kowa's positive brand image to the public, to engage in CSR projects, to continuously manage a good relationship with customers and to encourage them to give good reviews to the public.

2.6.2.2 Sales Volatility & Scalability

Since the product is novel to the world and Kowa has no former experience of selling smoothies and "<smoops>" in Silicon Valley, the sales numbers will likely be unpredictable. Too low sales can lead to overstock and eventually to inventory going bad, while too high demand can compromise the quality of the offering. In order to maintain or improve profit margins while sales volume increases or maintain profit margins in periods of low sales, it would be beneficial for Kowa to operate at the minimum efficient scale. As Kowa's healthy drinks are sold mainly in subscriptions and to corporations with relatively high volume orders, production volumes should be easier to predict than conventional smoothie businesses. In addition, since the products are frozen and have a shelf life of around 6 months, the consequences from overstocking are not as severe as for other smoothie businesses.

Nevertheless, strategies to mitigate this risk have been identified and include data analytics of own historical sales and moreover to bring in external expertise in analytics from consulting firms. For the launch, Kowa is recommended to have a large volume of smoothie and "smoop" overstock as the loss of sales is a bigger threat than the cost of excessive inventory.

2.6.2.3 Risk of Imitation

While the main distinctions between Kowa and competitors' products are presented in Figure 13 where the differentiation of the product on three product levels is shown, there is little stopping competitors from stealing a working concept. All types of successful businesses face the risk of imitation from competitors. Thus the mitigation of this risk is ultimately about what makes Kowa unique in the long-run and their story-telling ability.

Two main things will help Kowa retaining its customers; the brand equity and customer satisfaction. As Kowa is mainly using direct selling channels for its smoothies and "<smoops>", the company has the possibility to ensure that its customers are more than satisfied with their experience through providing high-quality products, punctual delivery and excellent service. Through the first-mover advantage of the "<smoops>" and being first with introducing hydroponically produced ingredients to the smoothie and soup industry, Kowa is also expected to create a buzz and attract a loyal customer base, the so-called "smoopers".

2.7 Own Contribution

In the initial stages of the project (mostly secondary research) the work was rotated among all members of the team, so that everyone would get the same insight on the market and industry. Moreover, individual contributions were always discussed by the whole team, so that everyone was on the same page and could add inputs. In the later stages of the project work was more and more divided according to competences of the team members. My bachelor degree being in marketing, my personal contribution to the project was the development of the marketing and CRM strategy, the branding and the marketing communication mix (product, place, promotion, price), segmentation and targeting; which were later used as input by the other members for the competitive analysis and the financials. While these parts were completely done by me, there were further parts which were done by me and another member of the team together. These parts include the quantitative PESTEL Analysis (Finding appropriate metrics for the dimensions and finding reliable information on these metrics), the Qualitative PESTEL analysis (where I personally was responsible for identifying trends in the US West Coast, Singapore, Hong Kong and China) and in the consumer interviews where I conducted about one third of the interviews used for analysis.

3 Academic Discussion

During my Bachelor's degree I developed a deep interest in Marketing. However, during my Masters at Nova I felt the need to broaden my horizon and therefore took many electives outside of Marketing. Despite not having an official major, I took numerous electives from the "Social Enterprise" major. During my studies I discovered a profound interest for this topic, especially for sustainable solutions and CSR. Therefore, I chose "Green Marketing" as topic of independent research which I see as a perfect crossover between my bachelor and master degrees and the respective focus of studies. It serves to prove that sustainability within a company is not just a promotional tool, but can and should be incorporated in the overall strategy. It also is my first glimpse of my favoured area of employment.

3.1 Definition

Green marketing is defined as the sum of all activities needed to design and enable exchanges between service provider and service taker in a way that satisfies the needs of the later while minimising the impact on the natural environment and surroundings (Polinsky 1994).

Various terms have been employed as synonyms of green marketing, such as environmental marketing, ecological marketing, greener marketing, environmental marketing, sustainable marketing and many more. While some researchers consider them to be separate fields of activity, in most cases they are not distinguished among each other and all understood as terms from the same field of study: analysing the impact of marketing activities on the environment and how this can be included in corporate decision making (Chamorro, Rubio und Miranda 2009).

Green marketing evolved in three distinctive stages as identified by Peattie (2001):

1. 'Ecological' Green Marketing – focusing marketing activities on industries (e.g. Oil) with direct impact, aiming to help with environmental problems and provide solutions
2. 'Environmental' Green Marketing – The focus of green technology shifted, now involving new and innovative product with the focus on pollution and waste issues. Green marketing was take to products used in the consumers' homes.
3. 'Sustainable' Green Marketing – A new marketing discipline looking at the whole process from design, production, marketing to sales, attempting to implement eco-friendly practices at each stage.

All above mentioned terms will be treated as synonyms in this paper unless stated otherwise.

3.2 Relevance & History of Research

Research on green marketing dates back to the first surge of social consciousness towards environmental issues and the environmental footprint (Environmentally Conscious Consumer Behaviour ECCB) as early as 1960's and 1970's in the US (Chamorro, Rubio und Miranda 2009). It was dressed by Kotler as one of the four considerations in marketing-decisions making: consumer-wants, consumer interests, company requirements and societal welfare (Kotler 2010). The scope of research treated green marketing as a sub issue of general marketing, while examining both positive and negative activities and using only very specific environmental issues and on the characterisation of green consumers (Ingram und Durst 1989). Research on green marketing was conceivably reduced during the economic crisis 1973-1975 and the following years, only to be picked up again in the 1980's and 1990's when public interest for the topic rose again and a new ecological boom came. While in the earlier years research was mainly focused in the US, in the 1990's it spread to Europe (Chamorro, Rubio und Miranda 2009). It can be seen clearly that research on green marketing is a direct derivative of societies' interest and care for the environment (Polinsky 1994).

Together with an evolution of the understanding of green marketing the topics researched also evolved, leaving five areas as identified by Chamorro, Rubio und Miranda (2009) in their analysis of 112 research papers on green marketing from 1993-2003:

1. 'Green consumers' – focusing on profiling and understanding the behavioural patterns of consumers who engage in green marketing promotions and activities. This topic is the most researched
2. 'Micromarketing' – trying to make a link between consumer attitude and consumer behaviour as well as understanding the shift from the Dominant Social Paradigm (DSP), a belief in limitless growth and resources, problem solving capacities of technology and science and strong commitment to free economy and private property rights above all, to the New Ecological Paradigm (NEP) (Dunlap, et al. 2000) and ECCB which sparked the green marketing debate initially as explained by Roberts und Bacon (1997)
3. 'Recycling Behaviour' – this being a subtopic of micromarketing used to be a widely research topic, and an important component of green marketing, also actively supported by governments, however academic research in this topic has declined in the past decades
4. 'Green Communication' – is the area of research that looks at how green issues are communicated to consumers, the general public and other stakeholders of organisations (eco-labels & eco-brands). It is further divided in the subgroups "Anatomy of Green Ads" (that is the design and components of green advertisements)

and "Consumers' response to Green Ads" (research suggests that eco-brands have an overall positive perception among consumers and induce purchase (Rahbar und Wahid 2011)

5. "Concept and Strategies" – this final area analyses the integration of green marketing activities in the overall hierarchy of organisations

3.2.1 Relevance for Companies

Corporations can engage in green marketing in a defensive manner (doing the minimum to avoid negative consequences and comply to standards) or an assertive manner (by responding to market incentives companies gain a first mover advantage, usually doing more than required by regulations). Thus, organisations engage in green marketing for 4 different reasons (Polinsky 1994):

1. Green marketing is often perceived as an opportunity to achieve goals – for instance as it is becoming more and more a focus of public opinion (Polinsky 1994) companies can utilise it as a tool to increase their competitive advantage or brand equity (Kotler 2010) Similarly cost factors associated with waste disposal, or reductions of material use, e.g. in packaging play an important role here (Polinsky 1994) Therefore companies will be incentivised to reduce harmful waste, material usage, or fixed costs like electricity and lighting
2. Organisations believe in moral obligation to Environment and society – the organisation will incorporate green issues into corporate culture and strategy. The organisation may the choose whether to promote its green orientation to consumers or not, like Coca-Cola for instance that does not promote most of its green activities (Kotler 2010, Polinsky 1994)
3. Legislations and policy makers force organisations to be more environmentally friendly e.g. CO2 emission regulations (Polinsky 1994)
4. Environmental activities from competitors force the organisation to follow along or else risk losing their position; at this stage environmental issues and their mitigation become industry standard

3.3 Research Results

As outlined above green marketing has been in the focus of academic research for many years and various findings have been made. Some of the most prominent results will be presented in the following.

Environmental conciseness has several components: knowledge about issues, attitude towards issues and behaviour in light of issues (Diamantopoulos, et al. 2003). Most researches rely on the NEP Scale designed 1978 by the researchers Dunlap and Van Liere (Dunlap, et al. 2000). It is a three dimensional Scale measuring a multitude of attitudes towards the environment of the sub-scales: (1)'Humans are a part of nature', (2)'There are limits to the carrying capacity

of the ecosystem' and (3)'the ability of the technological progress to solve problems' (Roberts und Bacon 1997, Dunlap, et al. 2000). Using slight adaptations to the scale Roberts und Bacon (1997) found that consumers of the first category are most likely to switch to products that leave a smaller ecological footprint and follow a general desire to balance human versus nature. Consumers of the second category are more likely to reuse-and recycle as the try to maximise the general value of products and resources to society as a whole. As for the third category, the items were adapted and classified consumer behaviour as 'adaptation before modification', meaning that consumers will change their behaviour before attempting to change nature. Consumers of this group were found to have the strongest commitment to green activities and are willing to change their behaviour by choosing (avoiding) products with a positive (negative) impact on the environment. In summary each behavioural pattern has its own set of predictors. There is no generalizable set of predictors for ECCB, which explains why most researchers look at specific clusters of issues, behaviours and industries (Diamantopoulos, et al. 2003, Roberts und Bacon 1997).

Socio-demographic variables (SDV) are unsuitable predictors, as there are hardly any differences among income groups or educations groups and results vary (Laroche, Bergeron und Barbaro-Farleo 2001, Diamantopoulos, et al. 2003). The later have analysed several dozen research papers published 1972-1998 on linkages between SDV with knowledge of environmental issue (Eco literacy) and green consumer behaviour, supported with own research in the UK. Although they were able to identify some correlations between SDV and knowledge, there were no generally valid predictors of behaviour (Diamantopoulos, et al. 2003). Neither was Eco literacy found to be a reliable predictor of green consumer behaviour, as it was the same for green and non-green consumers (Laroche, Bergeron und Barbaro-Farleo 2001).

As found by Hines, Hungerford und Tomera (1987) in a meta-analysis of 187 studies and papers, attitude has a much stronger link to behaviour. Consumers who expressed high levels of concern on certain environmental issues were more likely to act upon them (e.g. energy conservation, recycling, supporting petitions). They found the attitude-behaviour relationship to be strongest in respondents from environmental protection group as contrasted to the general population. This link was both found in respondents with self-report measures and

also when actual behaviour was measured. Moreover, it was found that the difference in consumers who engage in green activities such as recycling and those who do not, lies not in their fundamental values and beliefs but rather in the strength of their attitude towards the issue (Vining und Ebreo 1992). Green consumers differ strongly in their attitudes from non-green consumers in three ways: (1)they do not perceive environmental friendly behaviour as an inconvenience; (2)they attribute higher importance to being environmentally friendly; and (3)they believe that environmental friendliness is not the sole responsibility of companies, rather everyone has to contribute (Laroche, Bergeron und Barbaro-Farleo 2001).

While not being a good predictor, knowledge of environmental issue plays an important role in the development of attitude, however there is a difference between perceived knowledge of the consumer and objective knowledge held (Roberts und Bacon 1997) – not always do consumers make correct and sound decisions on environmental issues due to lack of objective knowledge (Polinsky 1994). This underlines the importance of educating consumers both for companies and policymakers. Since one of the reasons for companies to engage in green marketing is pressure from the government or pressure from competition, which both in turn derive from pressure from the general public. Misinformed consumers can press for potentially bad environmental policies or industry standards. At the same time green marketing only works if the consumers are aware of environmental issues and willing to pay more for it (Polinsky 1994). Moreover, often consumer do claim to be concerned with environmental issues, however are not willing to pay extra for them (Peattie 2001, Roberts 1996). Although over the past years the number of consumer who are willing to pay more has steadily increased (67% of consumer in the US were willing to pay 5-10% more in 1989 and 15-20% more in 1993, while 79% of consumer in the UK were willing to pay 40% more in 1994) researchers struggle to find appropriate predictors of willingness to pay more and are thus unable to target green consumers and especially undecided consumers appropriately (Laroche, Bergeron und Barbaro-Farleo 2001).

3.4 Implications and Further Research

As research suggests Green Marketing is important for companies, as it is driven by consumer interest and policy makers. However, there is a discrepancy between consumers' awareness and interest in green marketing and their unwillingness to pay more. Therefore,

more research is needed to understand the position of Green Marketing in the decision making hierarchy of consumers. Equally important is to understand whether this hierarchy is fixed or whether the order of importance of other criteria (e.g. convenience, price, quality, etc.) is subject to change, so that sustainability can be made a more important decision making criteria. Equally important is to understand the mind-set of undecided consumers to be able to convince them to pay more for green products.

Additionally, since most research is focused in Anglo-Saxon Countries and deals with Anglo-Saxon consumers it is important to conduct more research in other countries, to be able to draw comparisons between cultural clusters, geographic regions and even individual countries. For this purpose, a large scale and standardised research is required. Although outlined previously that profiling green consumers is already in the focus of researchers, old results are likely to become obsolete at consumers and societies change. Moreover, with socio-demographics being unreliable predictors, it is important to find other, behavioural segmentation tools for marketers to ensure successful green marketing.

On other topics, further research should attempt to identify the value of green communications, such as labels and certificates to explain whether they add value to the brand promise. In the light of consumers making misinformed decisions because of misconceptions or misunderstandings it is crucial that communication is well designed and conveys information. Therefore, it would be interesting to research how consumers perceive and understand different elements of green communications and which ones are considered more credible than others (e.g. testimonies, independent evaluations, company promises and values, etc.) Research on this topic is limited to almost exclusively English-speaking developed countries offering little insights on other consumers (Rahbar und Wahid 2011).

Finally, it is important to understand linkages between the components of environmental consciousness to understand hoe knowledge, attitude and behaviour interact with each other. In this context it is important to examine difference between measuring self-reported behaviour and actual behaviour, as it is quite possible that respondents claim behavioural patterns they do not follow on which would explain overstocked British supermarkets with green products, after consumers first expressed interest and then claimed them too expensive (Peattie 2001).

4 Personal Reflection

During the project I strongly benefited from the practical approach to teaching at Nova. Having done many projects of this type, although smaller in scale one of my strengths was that I knew what to expect and how to manage my time. On top of this, my experience with group works, both at university and in extracurricular activities helped me. With 5 members our team was very large and relationship management as well as good team work were essential. It helped a lot to avoid conflict and find compromises through discussion and constructive feedback. Because of my background I was able to help my team a lot with designing the primary market research and the marketing plan, as I was the only member with profound knowledge in this field.

At the same time, I observed two weaknesses – a professional and a personal one. The professional one is my lack of knowledge on finance. Despite having done the mandatory course at Nova, my understanding of finance is still rather limited. As such I had the opportunity to learn a lot from my teammates who were more versed on these topics. In the end our team was very balanced in terms of areas of expertise and we could cover all topics among ourselves. As for the personal weakness, I am a very emotional person. At times when the project would not progress as planned or we would encounter unexpected difficulties it could get very frustrating and my emotions would get the better of me. At these times it is hard to reason with me and I am inclined to act spontaneously and emotionally rather than rationally. While I am not sure whether I will spend time to close my knowledge gaps on financial topics, I definitely plan to work on my personal weakness, as I consider it lack of professionalism.

In hindsight the way the project was conducted had both advantages and disadvantages. I liked the fact that we were assigned to the BP from the side of the university, as otherwise I would have opted for a different topic, simply because of lack of knowledge on this industry. It turned out better like this, as I found the project very interesting. On the other side there were negative aspects too. I found the weekly presentations before the Kowa managers too much. It took away valuable time which we could have used for the project. Moreover, these communication session, only served to present our progress of the last week to the managers,

we were getting hardly any feedback or information on Kowa. So a lot of crucial information was revealed at a very late stage of the project and we had to redo a lot of work in the end.

But below the line the BP gave me a unique opportunity to peek into the Japanese working culture. I benefitted from the BP both professionally and personally, especially in the light of the fact that I intend to stay in Japan and work there.

Bibliography

Bailey, Pat, and UC Davis. 2011. “California leads U.S. in organic agriculture production.” *Western Farm Press.* 9 March. Accessed July 23, 2016. http://westernfarmpress.com/management/california-leads-us-organic-agriculture-production.

Bratskeir, Kate. 2015. “The 10 Most Vegetarian Cities In The U.S.” *Huffington Post.* 20 October. Accessed July 23, 2016. http://www.huffingtonpost.com/entry/vegetarian-cities-in-america_us_56200629e4b050c6c4a4f155.

Bruzelius, Nils. 2014. *How much is too much?; Appendix b: vitamin and mineral deficiencies in the U.S.* Accessed July 18, 2016. http://www.ewg.org/research/how-much-is-too-much/appendix-b-vitamin-and-mineral-deficiencies-us.

Chamorro, Antonio, Sergio Rubio, and Francisco J Miranda. 2009. “Characteristics of Research on Green Marketing.” *Business Startegy and the Environment 18* 223-239.

Congress, Library of. 2015. “Restrictions on Genetically Modified Organisms: United States.” *Loc.gov.* 9 June. Accessed July 23, 2016. https://www.loc.gov/law/help/restrictions-on-gmos/usa.php.

2015. *Consumer lifestyles in the US.* Euromonitor International.

Dunlap, Riley E, Kent D Van Liere, Angela G Mertig, and Robert Emmet Jones. 2000. “Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale.” *Sournal of Social Issues 56 (3)* 425-442.

Hepler, Lauren. 2014. *Silicon Valley median income now $94,572 - 43% higher than the typical U.S. household.* 24 September. Accessed July 20, 2016. http://www.bizjournals.com/sanjose/news/2014/09/24/silicon-valley-median-income-now-94-572-43-higher.html.

Hines, Jody M, Harold R Hungerford, and Audrey N Tomera. 1987. “Analysis and Synthesis of Research on Responsible Environmental Behavior: A Meta-Analysis.” *Journal of Environmental Education 18* 1-8.

Ingram, Denise, and Patrick Durst. 1989. “Nature-Oriented Tour Operators: Travel to Developping Countries.” *Journal of Travel research 28 (2)* 11-18.

Jones-Shoeman, Cindy. 2011. “Four reasons why people become vegetarian.” *Naturalnews.com.* 2 January. Accessed July 23, 2916. http://www.naturalnews.com/030890_vegetarian_reasons.html.

Kotler, Philip and Gary Armstrong. 2010. *Principles of marketing.* Pearson education.

Kowa, interview by Team Kowa. 2016. (04 04).

2016. *Kowa Group.* Accessed 2016. http://www.kowa.com/#.

Kowa. 2016. *Kowa Optical Products - Prominar.* Accessed July 20, 2016. http://www.kowa-prominar.com/.

Kozai, Toyoki, Niu Genhua, and Takagaki Michiko. 2015. *Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production.* Academic Press.

Merah, Jeff, interview by Anna Shengelia. 2016. *Focus Interviews on Hydropinics, Green SMoothies and general consumer trands in the West-Coast* (13 07).

Moore, Latetia V., and Frances E. Thompson. 2015. “Adults Meeting Fruit and Vegetable Intake Recommendations — United States, 2013.” *Centres for Disease Control and Prevention.* 10 July. Accessed July 23, 2016. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6426a1.htm.

O'Brien, Jeffrey M. 2015. “Is Silicon Valley bad for your health?” *Fortune.* 23 October. Accessed July 23, 2016. http://fortune.com/2015/10/23/is-silicon-valley-bad-for-your-health/.

Peattie, Ken. 2001. “Towards Sustainability: The Third Age of Green Marketing.” *The Marketing Review 2(2)* 129-146.

Philpott, Tom. 2011. “California's Fruit-and-Veg Behemoth: Too Productive for Our Own Good.” *Mother Jones.* 9 September. Accessed July 23, 2016. http://www.motherjones.com/tom-philpott/2011/09/california-agriculture-too-productive-our-own-good.

Planet Smoothie. 2012. *How Big is the Smoothie Industry.* Accessed July 20, 2016. http://planetsmoothiefranchise.com/learn-planet-smoothie/big-smoothie-industry/.

Polinsky, Michael Jay. 1994. “An Introduction to Green Marketing.” *Electronic Green Journal 1(2)* (1): 1-10.

Porter, Michael. 1980. *Competitive Strategy.* New York: Free Press.

Roberts, James A, and Donald R Bacon. 1997. “Exploring the Subtle Relationships between Environmental Concern and Ecologically Conscious Consumer Behavior.” *Journal of Business Research 40* 79-89.

Roberts, James A. 1996. “Green Consumers in the 1990s: Profile and Implications for Advertising.” *Journal of Business Research 36* 217-231.

Silicon Valley Institute for Regional Studies. 2015. “Population Growth in Silicon Valley.” Accessed July 20, 2016. https://www.jointventure.org/images/stories/pdf/population-brief-2015-05.pdf.

Simpkins, Dulcey, Bryan Jungers, and Carol L. Stimmel. 2015. *Controlled Environment Agriculture Report and Market Forecast 2015-2023.* Accessed July 18, 2016. https://www.manifestmind.com/store/p1/Controlled_Environment_Agriculture_Report_and_Market_Forecast_2015-2023.html.

Stress, The American Institute of. n.d. “Workplace Stress.” *Stress.org.* Accessed July 23, 2016. http://www.stress.org/workplace-stress/.

Swartz, John. 2013. *Workplace Stress on the Rise With 83% of Americans Frazzled by Something at Work.* Accessed July 18, 2016. http://globenewswire.com/news-release/2013/04/09/536945/10027728/en/Workplace-Stress-on-the-Rise-With-83-of-Americans-Frazzled-by-Something-at-Work.html.

The World Bank. 2016. “Country Score Card: United States 2016.” *lpi.worldbank.org.* Accessed July 23, 2016. http://lpi.worldbank.org/international/scorecard/radar/254/C/USA/2016#chartarea.

Uzoma, Kay. 2015. “Percentage of Americans Who Diet Every Year.” *Lovestrong.com.* 24, 2015 June. Accessed July 23, 2016. http://www.livestrong.com/article/308667-percentage-of-americans-who-diet-every-year/.

Verru, Surendra. 2013. “The Impact of Consumer Behavior on Green Marketing: an Analysis.” *International Journal of Advanced Trends in Computer Science and Engineering 2 (1)* 569-575.

Vining, Joanne, and Angela Ebreo. 1992. “Predicting Recycling Behavior from Global and Specific Environmental Attutudes and Changes in Recycling Opportunities.” *Journal of Applied Social Psychology 22 (20)* 188-196.

Watters, Nadine. 2015. “16 Million People in the US are Now Vegan or Vegetarian!” *news.therawfoodworld.com.* Accessed July 23, 2016. https://news.therawfoodworld.com/16-million-people-us-now-vegan-vegetarian/.

Westra, Abby. 2015. *On the Menu: Heat Seekers 2015.* Accessed July 18, 2016. http://www.cspdailynews.com/print/csp-magazine/article/menu-heat-seekers-2015?page=0%2C4.

Appendix

Tables

Table 1: Production Margin of Basic Product

Product	Market Price	Production Cost includes. Delivery @ ¥10	Contribution Margin per pack
Lettuce (80g)	¥200	~¥140	¥60

Table 2: Kowa SWOT Analysis

Strengths	• Proprietary technology in hydroponics • Synergies in competencies and production in LED design, Medical Technology, Pharma and Chemicals • Global footprint thanks to extensive trade network • Financial commitment and willingness to invest in R&D • Relatively quick decision-making
Weaknesses	• Weak company and vegetable brands • Uncompetitive cost structure • Limited experience in indoor farming • Lack of scale • Lack of core technology and knowledge outside of Japan • Refusal to engage in provision of technology
Opportunities	• High potential for innovation • Increasing pressure from global warming, land erosion, urbanization and demographics • Decreasing costs of technology • Increasing world population • Increasing awareness of product benefits, i.e. food safety and traceability
Threats	• Strong competition from local and other global players in terms of products and technology • Impossibility to market products as organic • Country-of-origin effect as Japanese company selling vegetables abroad • Product attributes mismatch with market demands abroad • Limited product range

Table 3: Weights of each Indicator within the Dimensions of the PESTEL

Political Indicators:	Ease-of-doing-business index (5%)
	Freedom of trade index (5%)
Economic Indicators:	Level of corporate tax (5%)
	Disposable income (7.5%)
	Food production growth (5%)
	Food balance (7.5%)
Social Indicators:	Population density (7.5%)
	Uncertainty avoidance (7.5%)
Technological Indicators:	Logistics and distribution (9%)
	Innovation (6%)
Environmental Indicators:	Environmental awareness (6.25%)
	Share of arable land (size) (6.25%)
	Share of arable land (change) (6.25%)
	Fertilizer usage per hectare (6.25%)
Legal Indicators:	IP protection (5%)

Table 4: Most Attractive Target Countries

North America	Scandinavia	Benelux	Oceania	German-Speaking Europe	Middle East	Asia
Canada United States	Denmark Finland Norway Sweden	Belgium Netherlands Luxembourg	Australia New Zealand	Austria Germany Switzerland	Israel Qatar	Hong Kong Malaysia Singapore South Korea

Table 5: Market Trends

Nutrient Deficiencies **(Bruzelius 2014)**:

- Vitamin D: 95% of adults 19 and older
- Vitamin E: 94%
- Magnesium: 61%
- Vitamin A: 51%
- Calcium: 49%
- Vitamin C: 43%
- Vitamin B6: 15%
- Iron: 8%

Dietary Trends:

- ~ 45 million diet each year **(Uzoma 2015)**
- Reduction in meat consumption **(Watters 2015)**
- 16 million follow a vegetarian-based diet 2015) **(Watters 2015)**
- Healthy lifestyle one of the main reasons to go vegetarian **(Jones-Shoeman 2011)**
- Greater Los Angeles and San Francisco among top 10 US cities with highest consumption of vegetarian products **(Bratskeir 2015)**

Table 6: Recipes

Smoothies:	Kale – Pineapple – high in Vitamin A & C
	Mint – Orange – high in Vitamin A, C, Calcium & Iron
	Spinach – Orange – high in Iron, Vitamin C

	Swiss Chard – Mint –Parsley – high in Vitamin A, C & Magnesium
Smoops:	Carrot – Spinach – high in Vitamin E & Iron
	Carrot – Kale – high in Vitamin A, E, C

Table 7: Profit Margins Vegetable Based Products

Margins	**Fresh Vegetables**	**Subscription**	**Smoothies (Single Package)**
%(Est.)	10	20	25

Table 8: Sales Channels

	Single Order & Events	**Subscription**	**Subscription**
Channel	Food Truck	Workplace	Online
Target % of sales	20	70	10
Description	Serves mainly as promotion tool and 'shop window'	Direct delivery to office buildings	Direct delivery to office desks or home

Table 9 Profitability Analysis

Sales Price	**$ 5**	**$ 6**	**$ 7**	**$ 8**
Gross Margin	54%	61%	67%	71%
Operating Margin	23%	33%	40%	45%
Net Margin	15%	21%	26%	29%

Table 10 Break-Even Estimations

Sales Price	**$ 5**	**$ 6**	**$ 7**	**$ 8**
CAPEX			$ 9,751,281.13	
CM	$ 1.69	$ 2.49	$ 3.29	$ 4.09
BEP units	5,785,919	3,923,509	2,968,113	2,386,892
BEP years (100%)	3.96	2.69	2.03	1.63
BEP years (80%)	4.95	3.36	2.54	2.04

Figures

Figure 1: Hydroponic Crop Value Split by Region

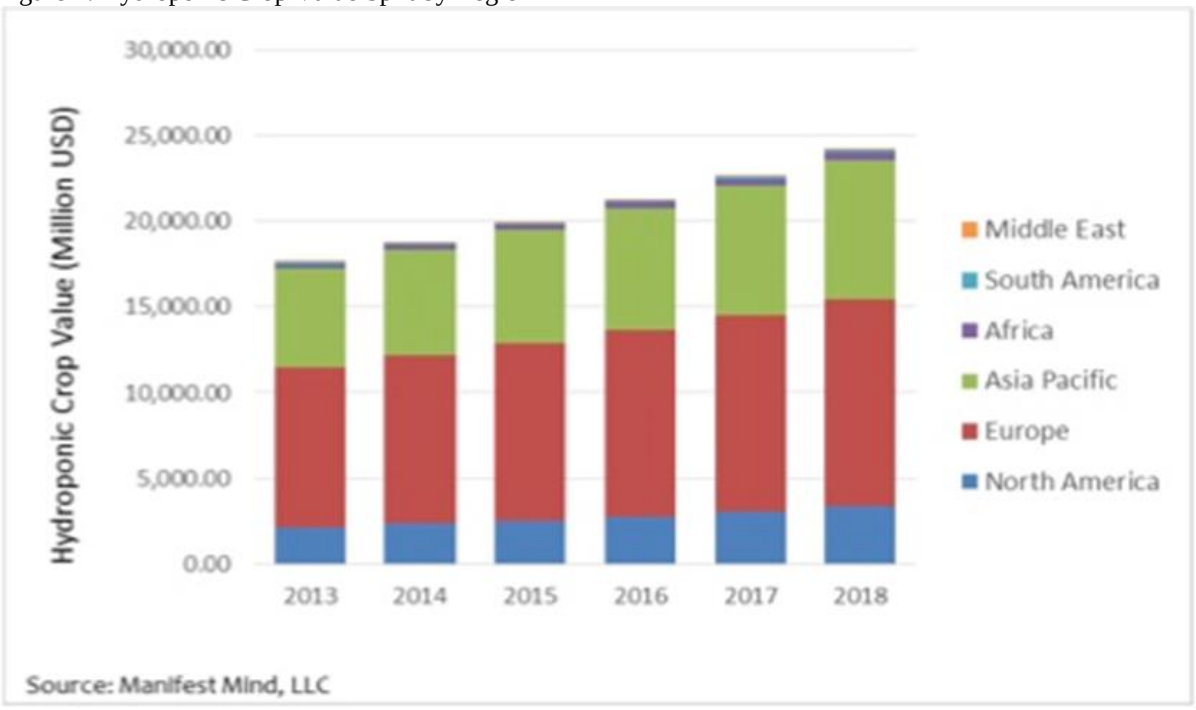


Figure 2: Global Market Value of Hydroponics

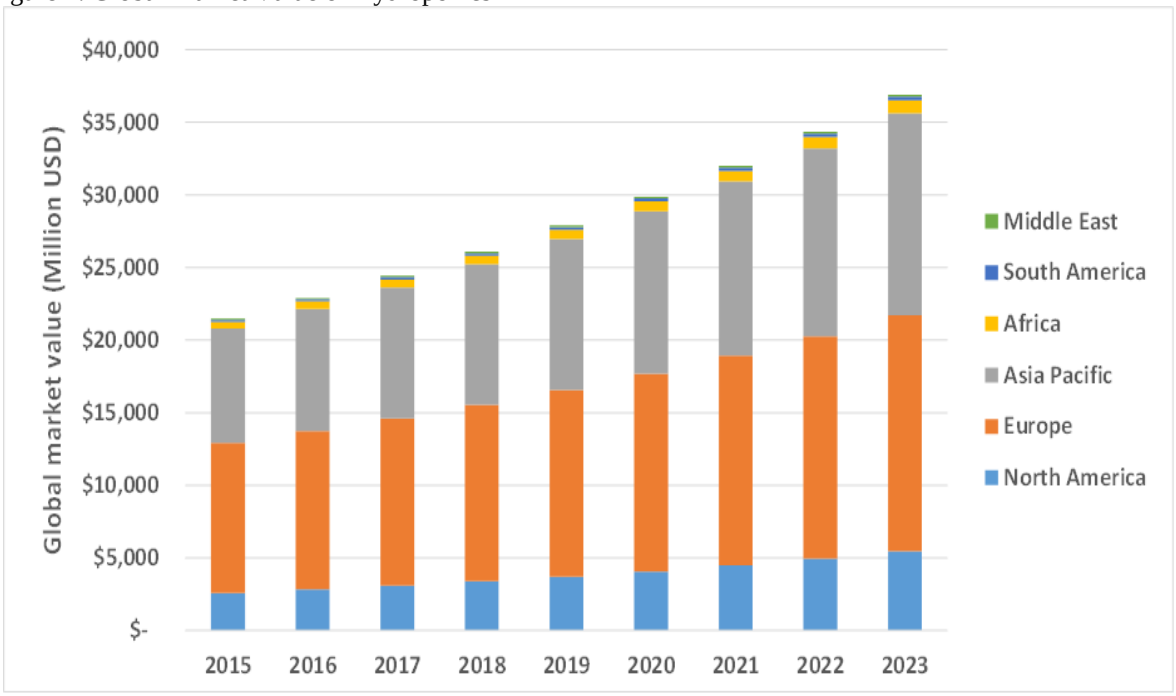


Figure 3: Pestle Approach

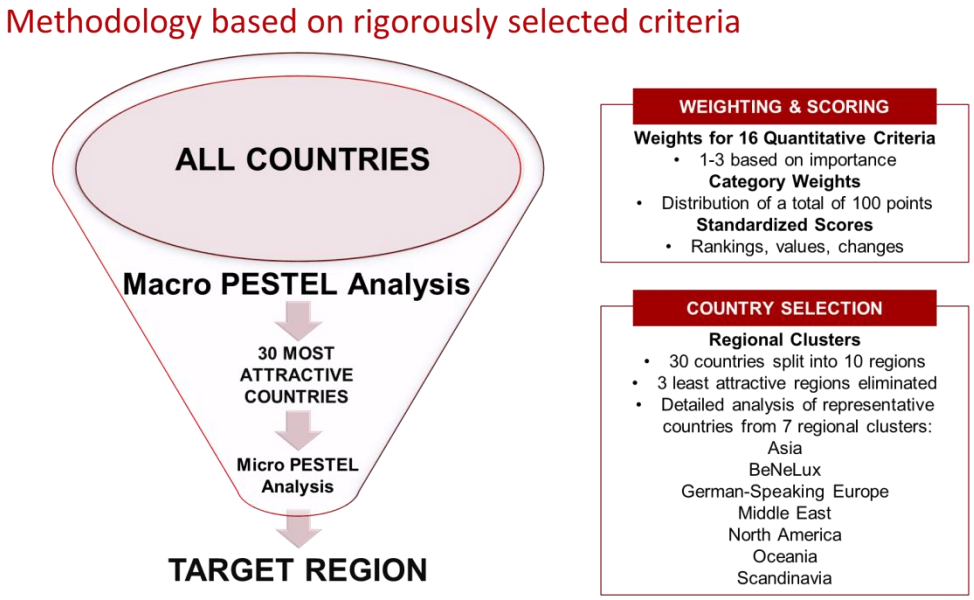


Figure 4:Pestle Variables

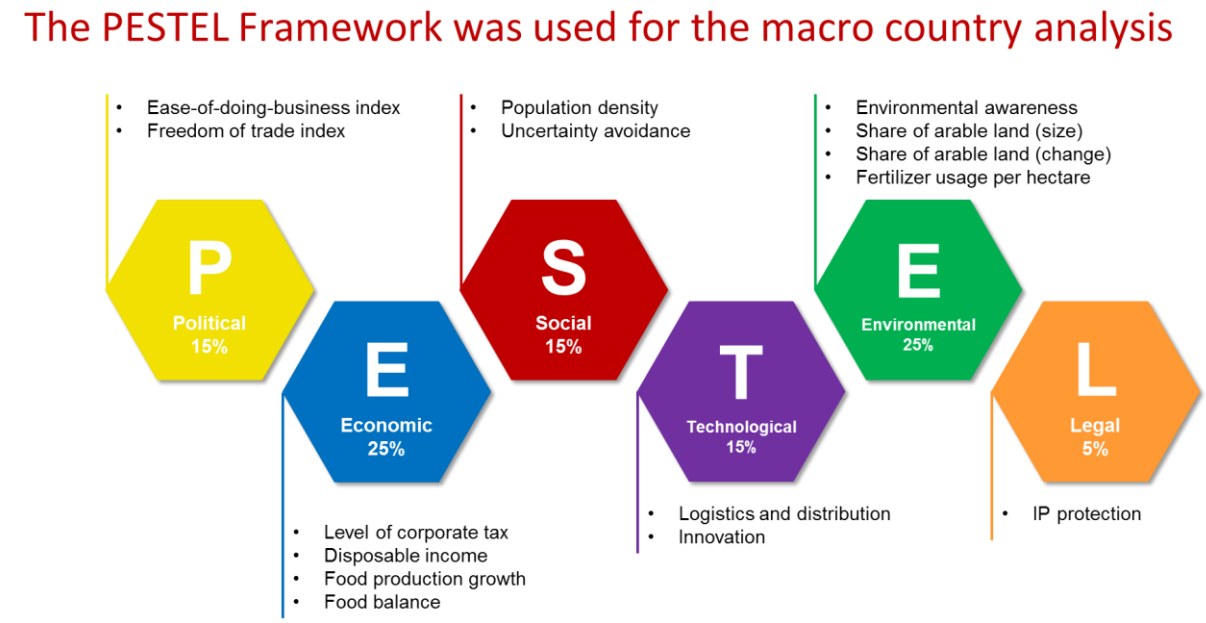


Figure 5: California Drought Severity and Change in CPI

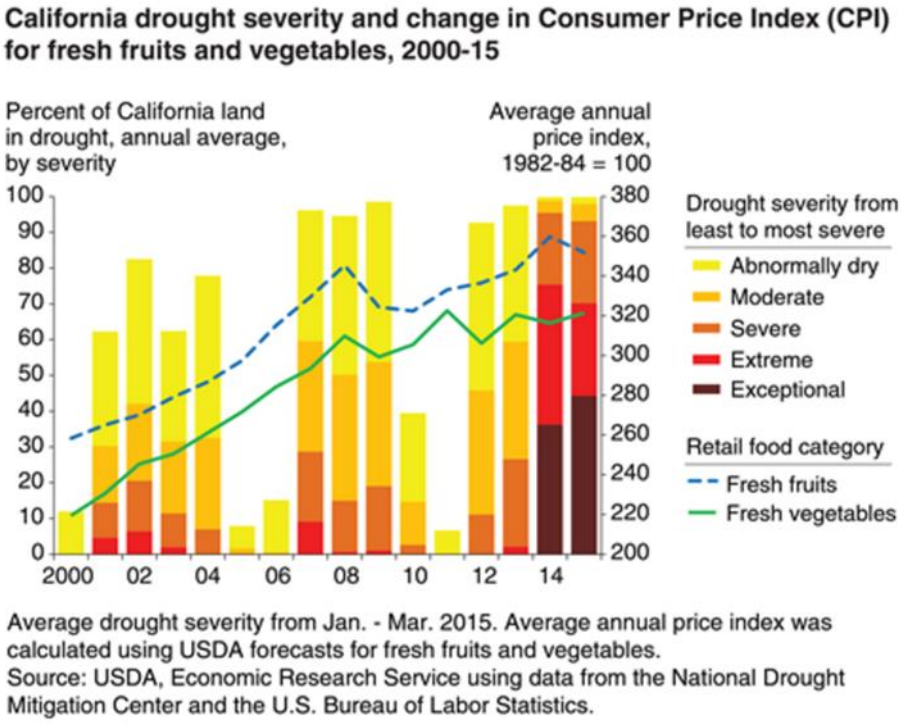


Figure 6: Median Household Income in the U.S., California and Silicon Valley in 2014.

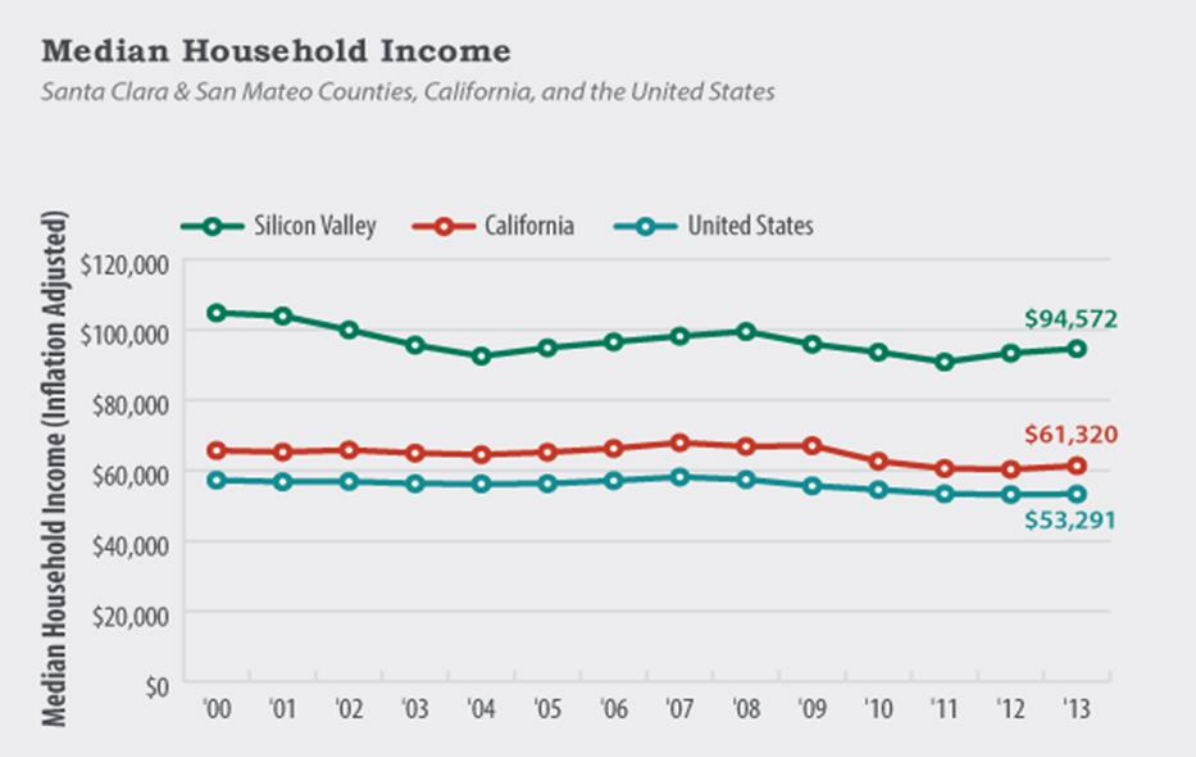


Figure 7: Distribution of households by Income Ranges in the U.S., California and Silicon Valley.

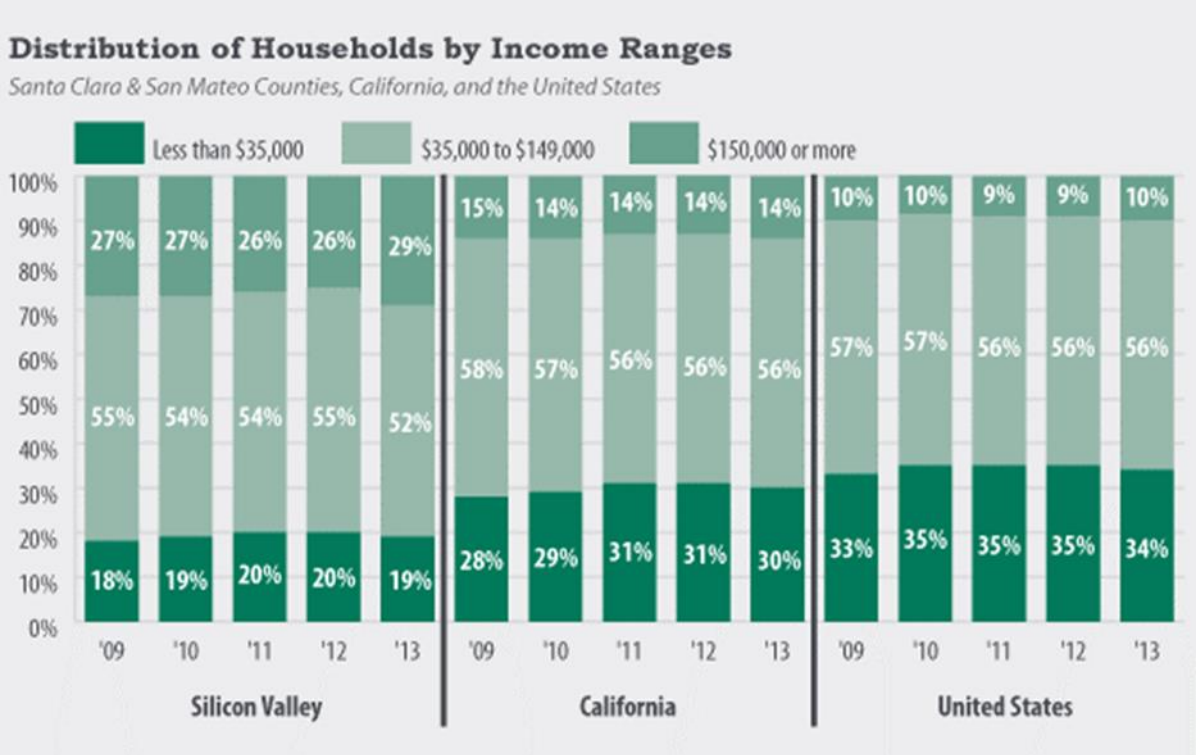


Figure 8: Rating of food delivery competitors on 4 dimensions of high-value-added Competitor Positioning Grid

	DOORDASH	POSTMATES	BBF	Cater2.me	EAT CLUB	ZeroCater	chewse	FARM HILL	Kowa
Ease of use	8	8	7	6	8	8	8	9	9
Healthy nutritional value	4	4	5	5	6	7	8	8	10
Delivery	6	4	7	6	5	5	9	6	9
Customer service	6	4	7	6	6	6	9	8	10
SUM	24	20	26	23	25	26	34	31	38

Ratings from 1 (very poor) to 10 (excellent) based on consumer reviews online and own research

Figure 9: Competitor Positioning Chart for Direct Competitors in the food delivery market in the Silicon Valley.

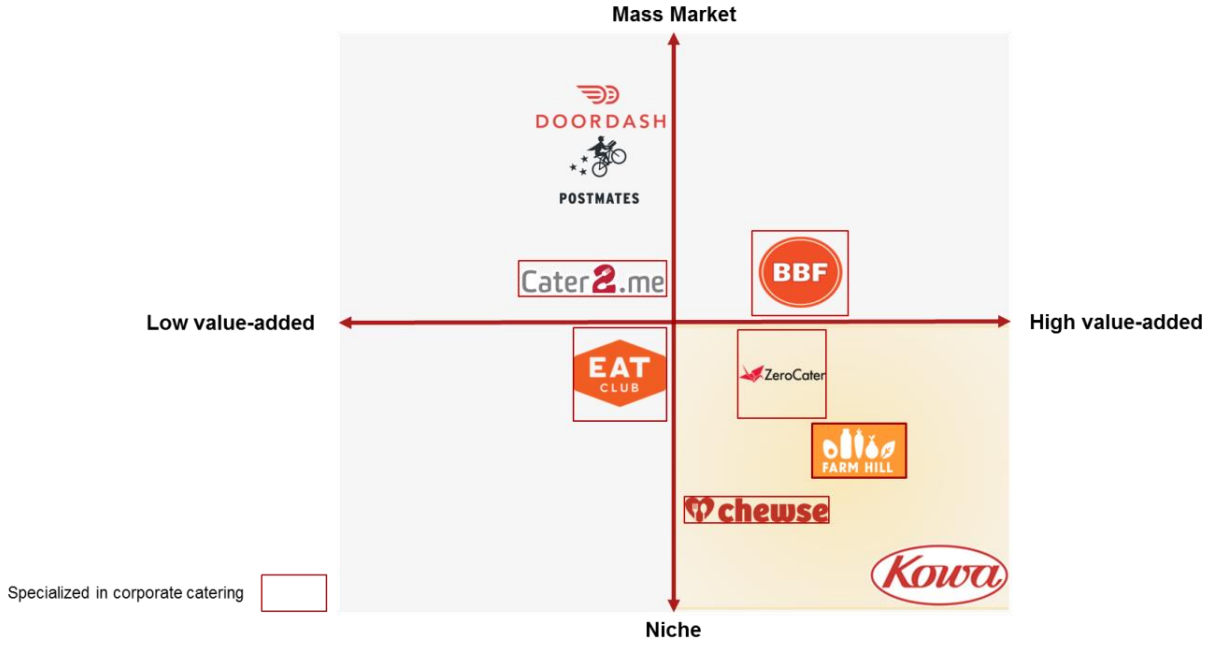


Figure 10: Competitor Positioning Chart for Direct and Indirect Competitors in the smoothie market in the USA.

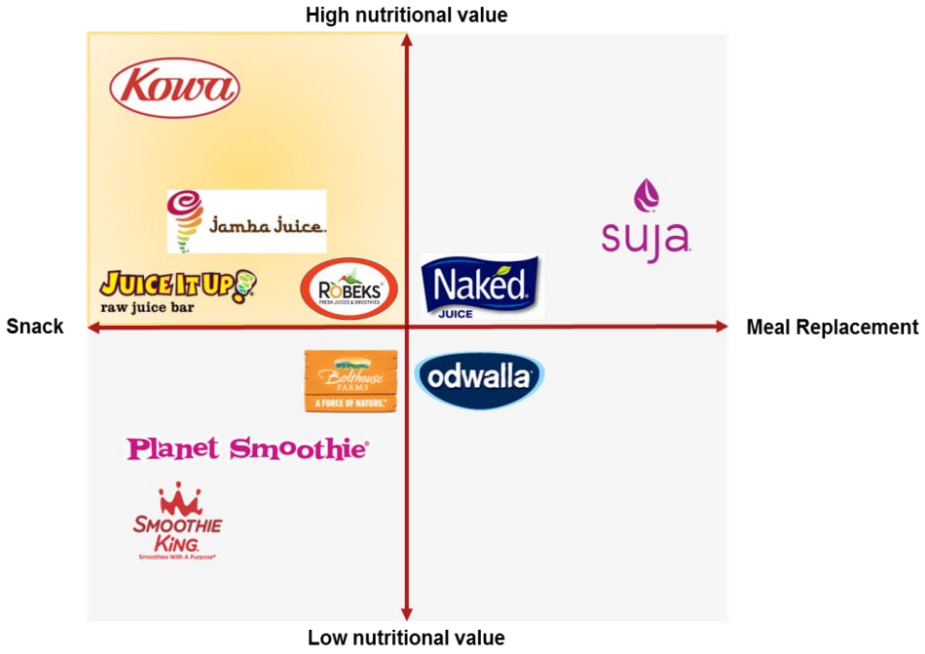


Figure 11: Consumption patterns of smoothies in the USA

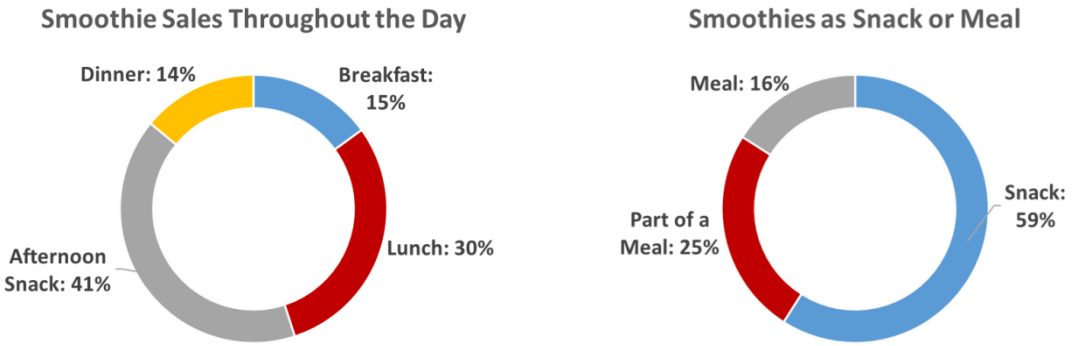


Figure 12: Direct and indirect competition accord to Time of Consumption

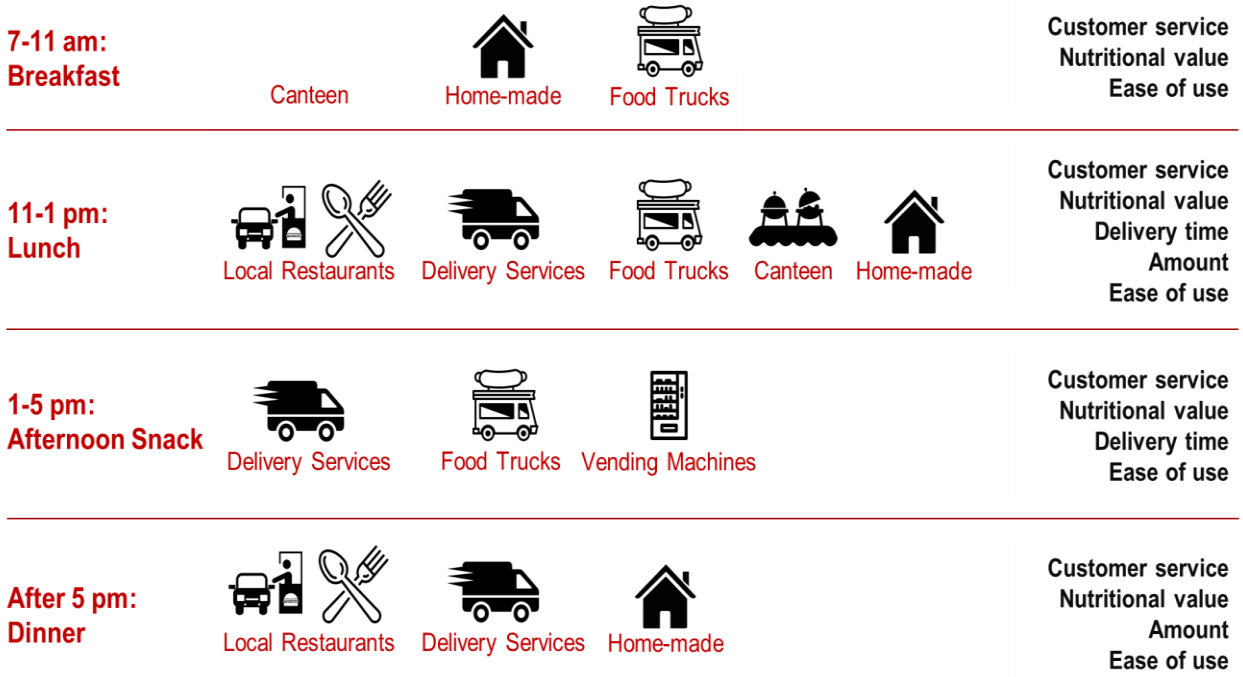


Figure 13: Differentiation Potential of the Product on Each of the Three Product Levels

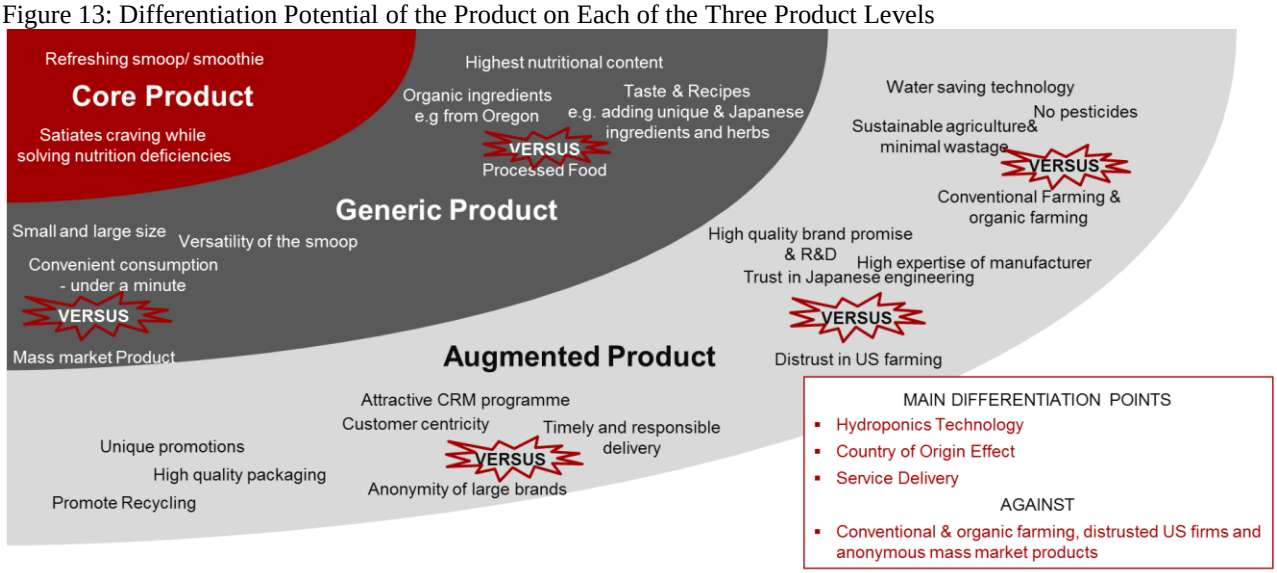
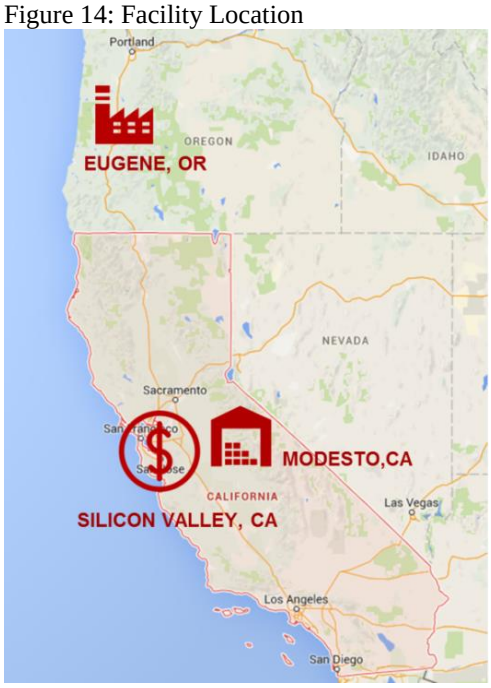


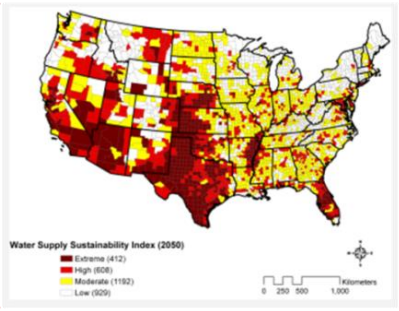
Figure 14: Facility Location



Electricity cost: $ 0.1 per kWh (33% cheaper than Komaki)

Water cost: $ 5.691 per kGal (50% more expensive than Komaki)

No risk of water shortage in the foreseeable future



Very soft water (suitable for Kowa's hydroponic system)

Proximity to organic product suppliers

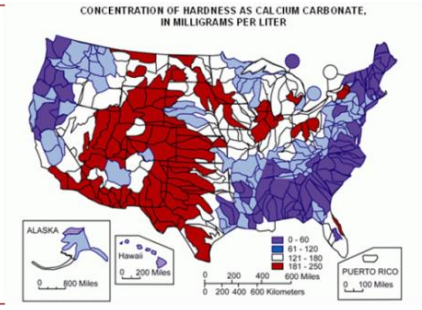


Figure 15: Facility Costs

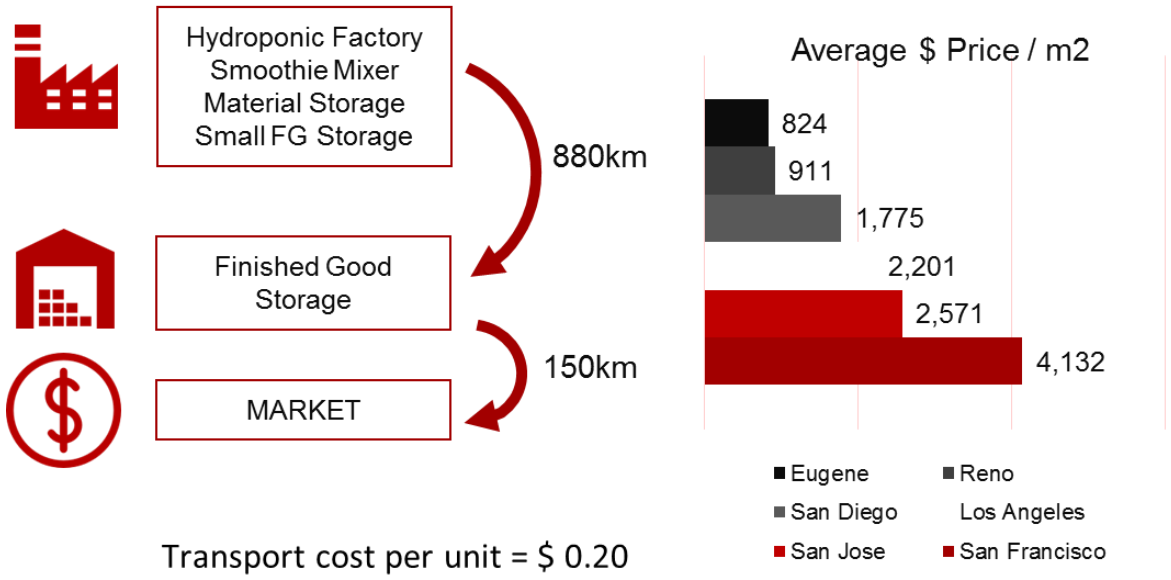


Figure 16: Estimated Size of Smoothie Market in the Silicon Valley. Sizing Approach and Results

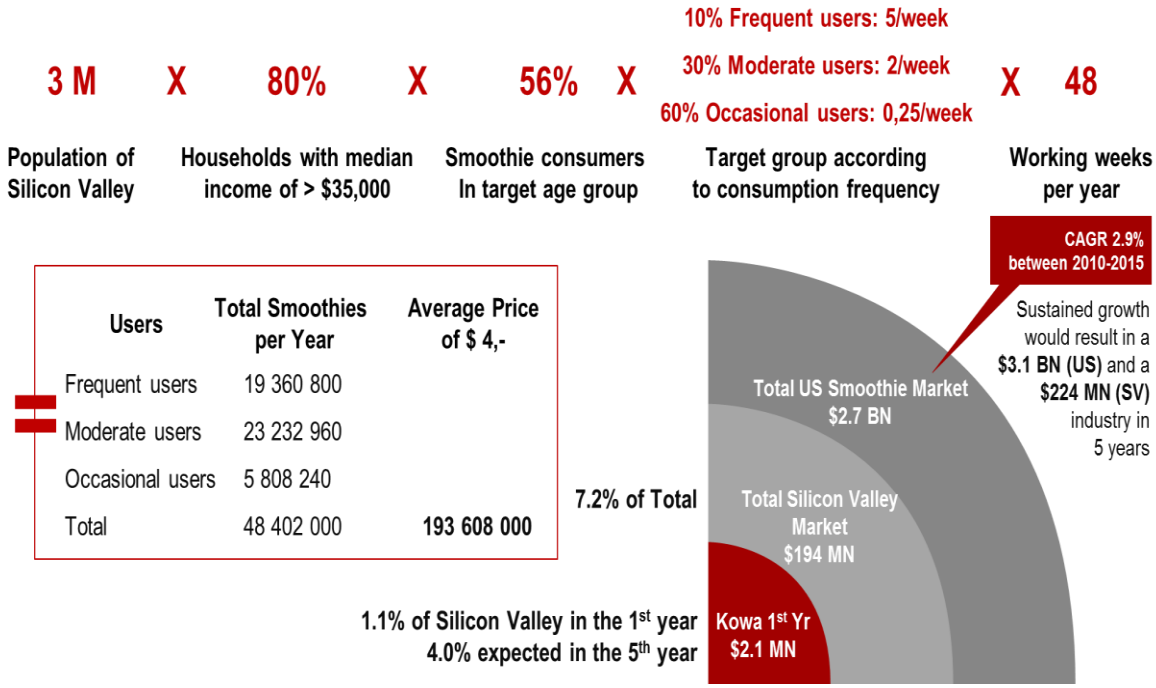
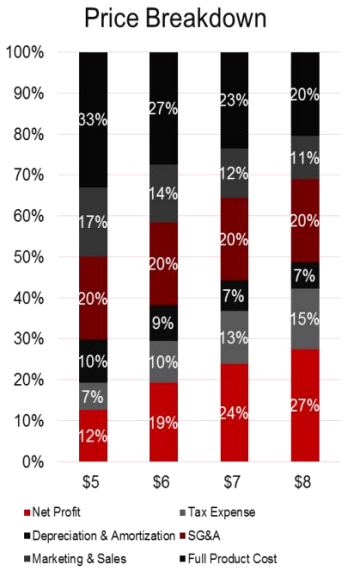


Figure 17: Projected Income Statement for Different Prices

Sales price	$ 5.00	$ 6.00	$ 7.00	$ 8.00	
Production	$ 1.04	$ 1.04	$ 1.04	$ 1.04	Kowa production, US 2015 material prices
Labour	$ 0.31	$ 0.31	$ 0.31	$ 0.31	15 people at $30,000
Utilities	$ 0.08	$ 0.08	$ 0.08	$ 0.08	Komaki expense rates
Transportation	$ 0.20	$ 0.20	$ 0.20	$ 0.20	Rent freezer truck, $0.71 per liter for fuel
Marketing	$ 0.68	$ 0.68	$ 0.68	$ 0.68	$1m annual budget
Sales personnel	$ 0.16	$ 0.16	$ 0.16	$ 0.16	4 people at $60,000
Cost of Sales	$ 2.48	$ 2.48	$ 2.48	$ 2.48	
GROSS PROFIT	$ 2.52	$ 3.52	$ 4.52	$ 5.52	
SG&A	$ 1.00	$ 1.20	$ 1.40	$ 1.60	20% of sales
Depreciation & amort	$ 0.52	$ 0.52	$ 0.52	$ 0.52	Property 15 years, equipment 8 years
Total Other Expenses	$ 1.52	$ 1.72	$ 1.92	$ 2.12	
OPERATING PROFIT	$ 1.00	$ 1.80	$ 2.60	$ 3.40	
Total Taxable Income	$ 1.00	$ 1.80	$ 2.60	$ 3.40	
Total Tax Expense	$ 0.35	$ 0.63	$ 0.91	$ 1.19	
NET PROFIT	$ 0.65	$ 1.17	$ 1.69	$ 2.21	
Gross Margin	49%	58%	64%	68%	
Operating Margin	19%	29%	36%	42%	
Net Margin	12%	19%	24%	27%	



Assumptions: exchange rate (1 USD = 106 JPY), land (1100m2 Reno, NV for factory, 200-300m2 DC in Modesto, CA, building renovation (according to Komaki), equipment (according to Komaki), Blender & freezer Kowa's quote of $300k), CRM & app (assumed that Kowa has an existing CRM system and money will be used primarily for app development or website extension)

Figure 18: Revenue Projections

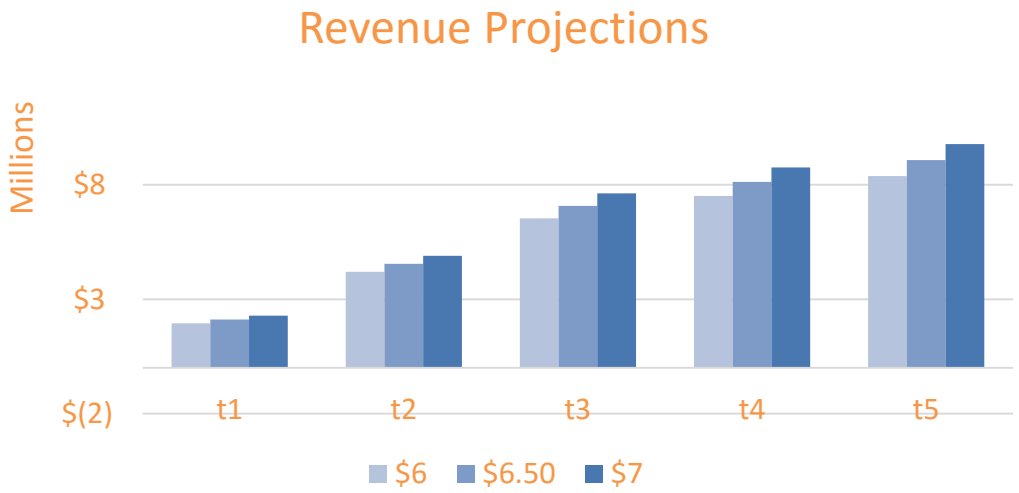


Figure 19: Net Profit Projections

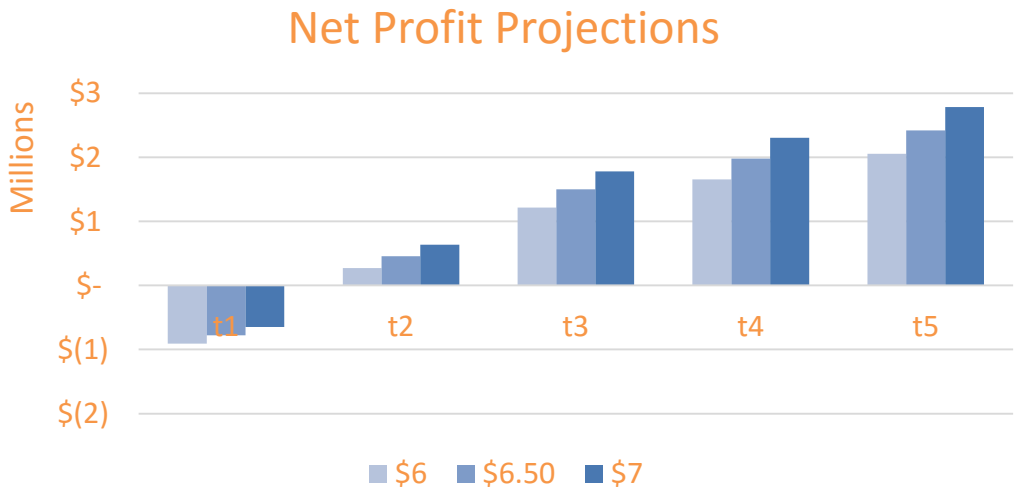


Figure 20: Sales Assumptions 1

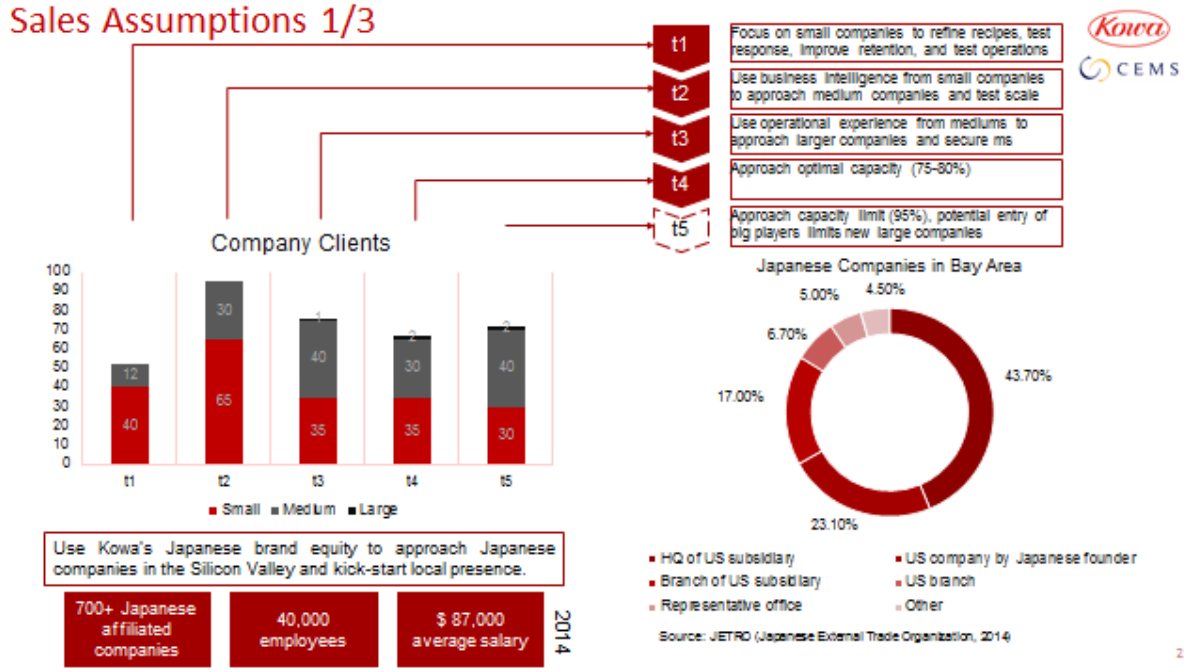


Figure 21: Sales Assumptions 2

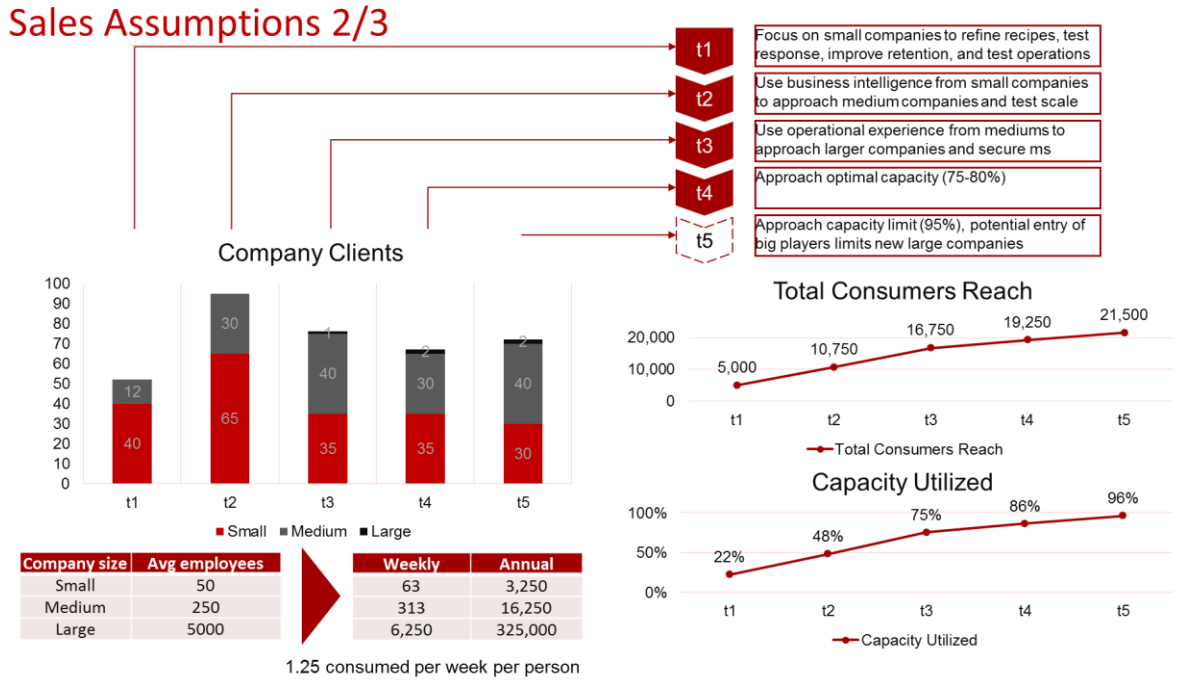


Figure 22: Sales Assumptions 3

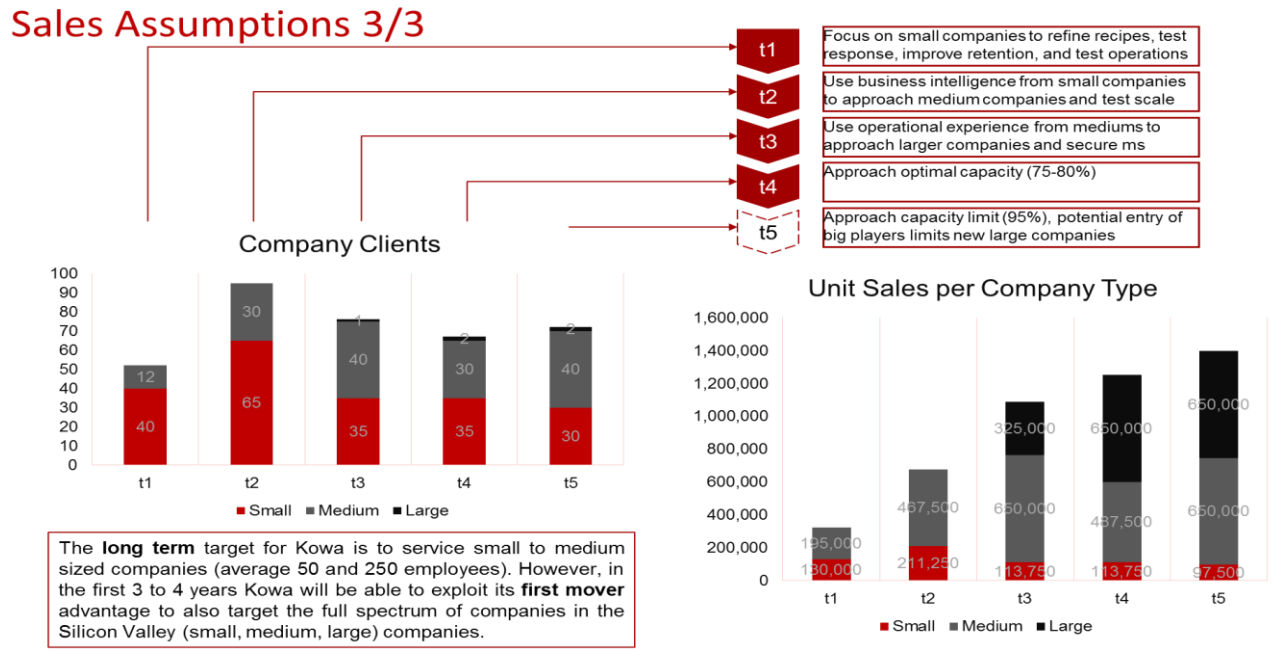


Figure 23: Project Timeline

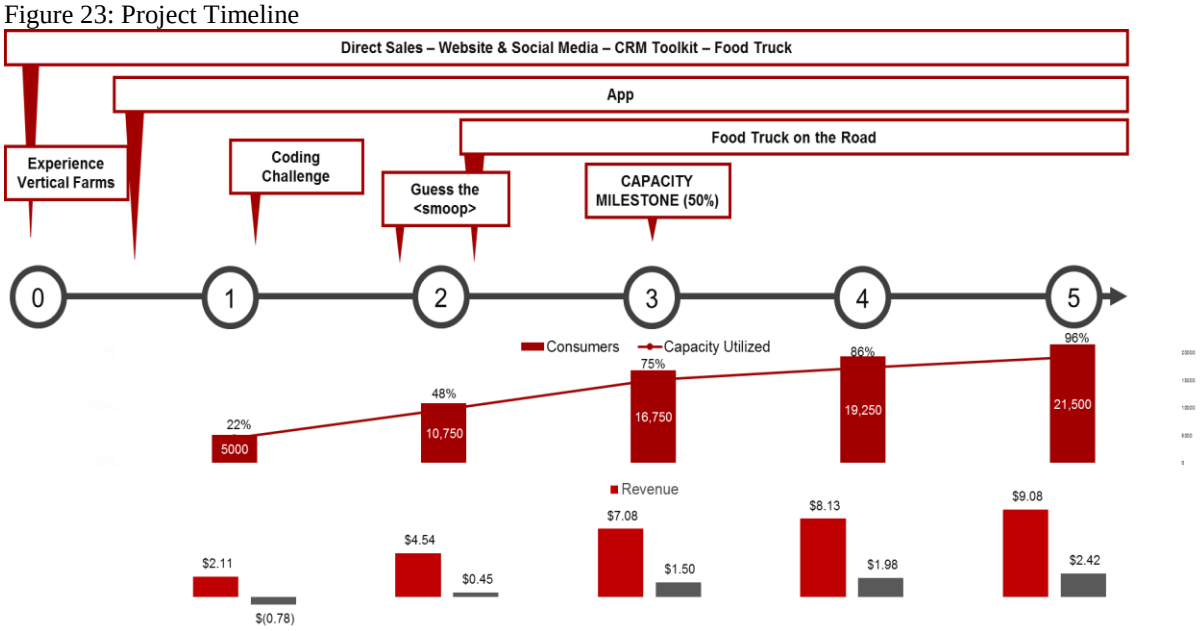


Figure 24: Expansion and Capacity Scenarios

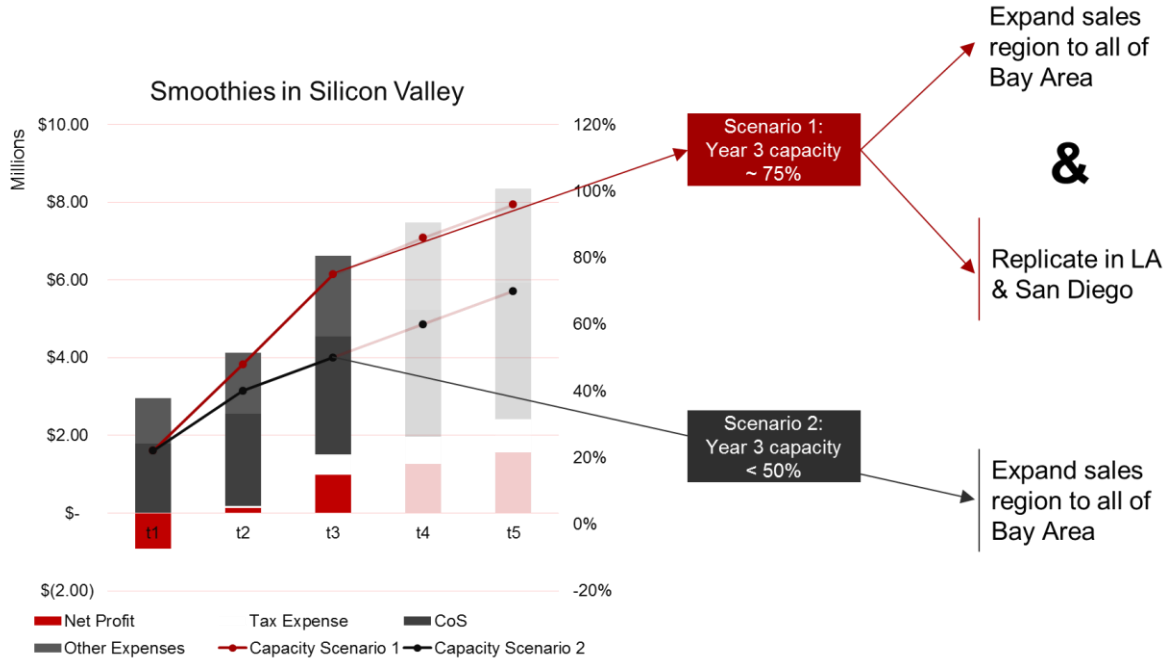


Figure 25: Expansion Scenarios